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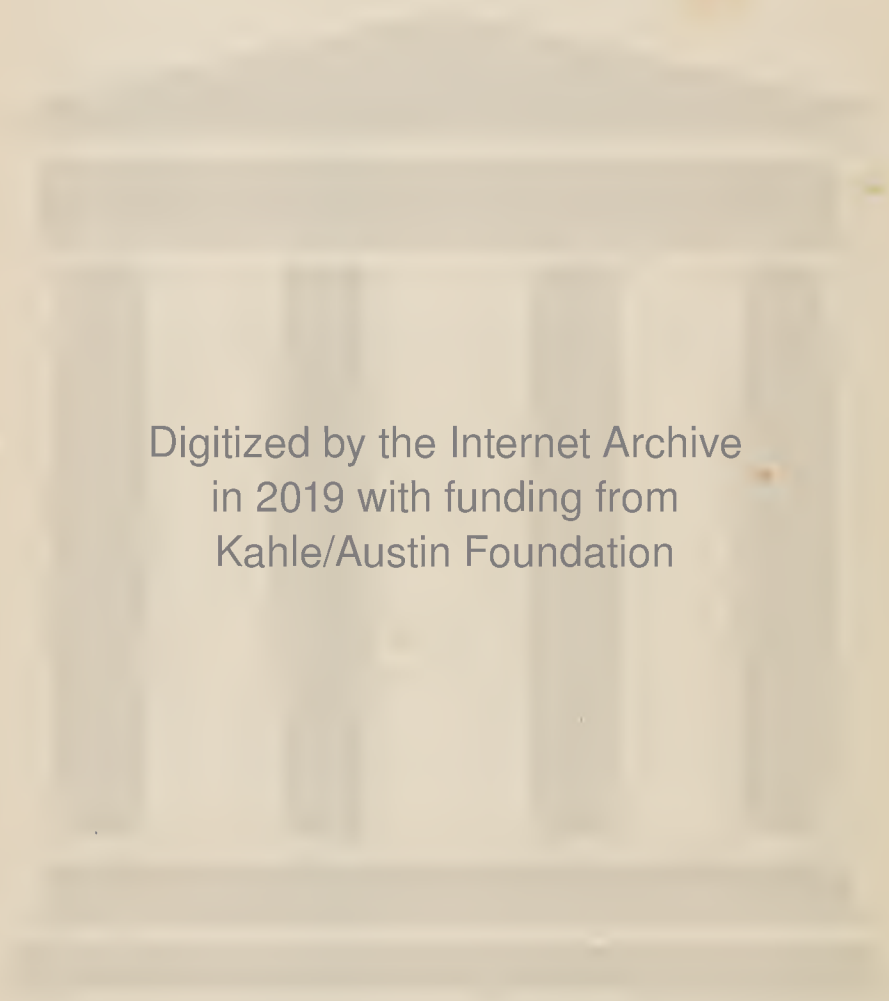


ADIANTUM CONCINNUM.

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FERN S;

BRITISH AND EXOTIC.

PTERIDEÆ. J. SMITH.

THIS extensive class of Ferns contains the genus *Hypolepis*, species with large and handsome fronds; the genus *Cheilanthes*, a very pretty tribe of plants, some of which are covered beneath the frond with dense farinose powder; *Platyloma*, a very varied and handsome tribe; *Adiantum*, known generally as the Maiden-hair Ferns, the most delicate-looking of any tribe; *Litobrochia*, an extensive genus; *Pteris*, mostly large and elegant Ferns; *Onychium*, a small but interesting family; *Lomaria*, having fertile fronds different in form from the barren fronds; *Blechnum* and *Doodia*, singular Ferns; and *Woodwardia*, a small but elegant genus.

In the *Pterideæ* the sori are circular or elongated, and transverse, marginal, intramarginal or costal, simple, except when they become confluent, when they are compound. The sori have a special lateral indusium, which is produced on the exterior side of the sporangiferous receptacle. Its inner margin is free.

The *Pterideæ* are at once known from the *Polypodiaceæ* by the special indusium.

GENUS I.

ADIANTUM. LINNÆUS. J. SMITH.

THE fronds of the genus *Adiantum* have a curious property of repelling moisture, hence its name, *Adiantos* meaning *dry*. The form of the sori is reniform, oblong, round, or linear; They are placed on the margin of the pinnæ, either in a continuous line or interrupted. The venules are direct, their apices terminating in the axis of the indusium. The indusium is venose, being formed of a reflexed crenule, of an oblong linear or reniform shape, according as the margin of the frond is crenulate, or more or less entire. The indusium on the under side is sporangiferous, after a time becoming replicate.

The midrib of the pinnæ eccentric or wanting.

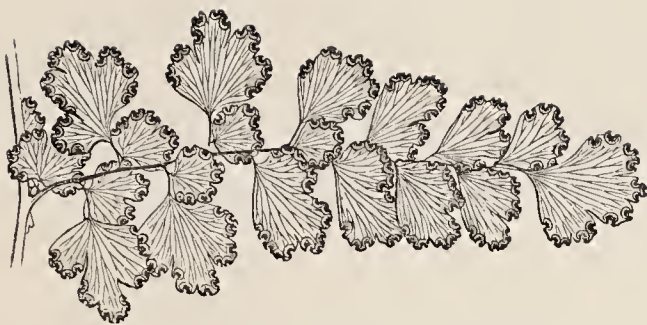
The veins are unilateral or radiating, and are forked.

The form of the frond is either simple, pinnate, pedate, bipinnate, reniform, or decompound; varying in its length from six inches to three feet. The fronds are mostly smooth.

The stipes and rachis are mostly black in colour, and have a polished glossy appearance. Usually the pinnæ are oblique, truncate, or wedge-shaped at the base, or dimidiate, and only soriferous on the upper margin, mostly articulated with the rachis or petiole.

Sir William Hooker, in his splendid work, "Species Filicum," has described no less than one hundred and eight species of this lovely tribe of plants; many of them, however, are unknown as cultivated plants.

The majority of the *Adiantums* are natives of tropical or temperate climates.



Portion of mature Frond, under side.

ADIANTUM CONCINNUM.

HOOKEE. HUMBOLDT. PRESL. BONPLAND. LINK.
WILLDENOW. MOORE AND HOULSTON. KUNTH.

PLATE I. VOL. III.

Adiantum tenerum,
“ *affine*,
“ *cuneatum*,

SCHKUHRE.
MARTENS AND GALLEOTTI.
HOOKER.

Adiantum—Dry.

Concinnum—Neat.

THIS very lovely pendulous species is not common in cultivation, being only found in the more complete collections of Ferns. It is deserving of a place in every Fern-house. The frond is semi-transparent, and the sori being numerous, are shown to great advantage.

It is a widely-spread Fern, being a native of the West Indies, Central and South America, Caraccas, Guayaquil, Chacapoyas, Peru, Mexico, Gallipagos, Jamaica, St. Vincent Island, Venezuela, and the Andes of Quito.

It is an evergreen stove species.

The length of the frond varies from one to two feet, and about eight inches broad in the widest part.

Tripinnate, glabrous, slender, membranaceous, the pinnules being rhomboidal and obliquely wedge-shaped at the base; the lobes crenate, blunt, and mostly entire. The lowest pinnules of each primary and secondary pinna are upright, and appressed to the rachis.

Sori small, about eight to ten in number on each pinnule; the indusium reniform.

The stipes somewhat short, the main rachis straight and thick; stipes and rachis glabrous, shining, and ebeneous; when young, green. Fronds of about an equal width for two-thirds of their length, then gradually tapering to the apex, lateral, attached to a somewhat creeping rhizoma.

It requires to be cultivated in a stove, indeed all the *Adiantums* flourish best in heat, even the hardy species. The British *Adiantum capillus-veneris*, and the North American *A. pedatum*, although both flourish in the open air in this climate, will grow so much more luxuriantly in a stove, that an ordinary Fern grower is astonished at the increased size and healthy appearance of these species.

A. concinnum requires shade.

It appears to be in most of the Nurserymen's Catalogues, as it is in those of Messrs. Veitch, of Exeter; Rollisson, of Tooting; E. G. Henderson; A. Henderson; Backhouse, of York; and Booth and Son, of Hamburg.

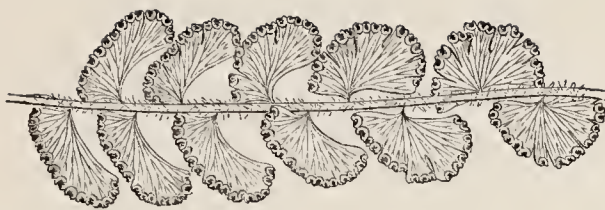
Messrs. Backhouse, of York, have sent me a plant of this Fern; and Mr. Henderson, of Wentworth, and Mr. Norman, of Hull, have forwarded fructified fronds.

The illustration is from a plant in my own collection.



ADIANTUM CAUDATUM.

A. RENIFORME.



Pinna of mature Frond, under side.

ADIANTUM CAUDATUM.

LINNÆUS. MOORE AND HOULSTON. HOOKER. FEE.
 BURMANN. PRESL. KAULFUSS. SPRENGEL. SWARTZ.
 SCHKUHR. WILLDENOW.

PLATE II.—A. VOL. III.

<i>Adiantum hirsutum,</i>	BORY. WILLDENOW.
“ <i>incisum,</i>	FORSKAHL.
“ <i>vestitum,</i>	WALLCH.
“ <i>ciliatum,</i>	BLUME.
“ <i>flagelliferum,</i>	WALLICH.
“ <i>capillus Gorgonis,</i>	WEBB.

e

Adiantum—Dry.

Caudatum—A tail.

AN evergreen stove species, very different in appearance to the majority of the Maiden-hair Ferns.

The usual length of the frond is from twelve to eighteen inches; in form it is elongated, attenuated, hairy, not unfrequently rooting at the apex; the pinnae oblong-obtuse, being wedge-shaped at the base; the upper margin separated into small dilatate segments. Pinnae rather thick, membranaceous, the veins mostly prominent and well seen.

Rachis and stipes pale brown, devoid of pinnæ at the apex, terminal, rising out of a fasciculate rhizoma, clothed with chaffy fulvous hairs. The stipes short and tolerably stout.

The colour of the frond pale dull green.

Sori numerous, small, one on each segment; involucre nearly orbicular.

A widely-spread Fern, from China, Ceylon, Mauritius, Manilla, Malay Islands, Java, Arabia-Felix, Cape de Verde Islands, Madras, Bengal, Nepal, Behar, Assam, Boutan, Mishmee Mountains, etc.

It requires considerable heat to grow it luxuriantly.

Mr. Henderson, of Wentworth, has kindly forwarded a plant of this species.

Adiantum caudatum is contained in the Catalogues of Mr. R. Sim, of the Nursery, Foot's Cray; Mr. E. Cooling, of Derby; and of Messrs. Booth, of Hamburg.

The frond illustrated was sent by Mr. Henderson, of Wentworth.



Portion of mature Frond, under side.

ADIANTUM RENIFORME.

LINNÆUS. J. SMITH. HOOKER. MOORE AND HOULSTON.
SWARTZ. FEE. SPRENGEL. SCHKUHR. KAULFUSS.

PLATE II.—B. VOL. III.

Adiantum—Dry.

Reniforme—Kidney-shaped.

AN interesting and very distinct species, differing from all other Ferns in this genus, in habit and form of frond, excepting *Adiantum asarifolium*; and some authors consider this identical with *A. reniforme*. However, Sir William Hooker thinks differently; remarking that *A. reniforme* is more slender, has long stipes, is less scaly, the frond smaller and of thinner texture, and having less densely-approximated involucres. *A. asarifolium* is always a stouter and coarser plant. Willdenow also considers the two plants distinct. Both of these species

have a very limited geographical range; *A. reniforme* being confined to Madeira, Teneriffe, and the Azores; and *A. asarifolium* to the Mauritius and the Island of Bourbon. Petiver describes a third very similar plant, said to have been found in the Philippine Islands, and which he has called *A. Philippense*. Other botanists having failed in their search for Petiver's Fern, I fear that it must be considered as a doubtful plant.

The frond is simple, glabrous, and reniform, that is, kidney-shaped, having a broad shallow sinus; in length it is about six inches, and in width usually two inches; terminal, rising out of a scaly and somewhat creeping rhizoma. The colour of the frond a brilliant shining green.

Sori oblong and contiguous.

An evergreen greenhouse species, requiring attention in its cultivation.

I am indebted to Mr. Sim, of Foot's Cray, for a plant of this Fern; and to Mr. Sim; Mr. Norman; Messrs. Booth; and Mr. Henderson, of Wentworth, for fructified fronds.

It is in the Catalogues of Messrs. A. Henderson, of Pineapple Place; E. G. Henderson, of St. John's Wood; Backhouse, of York; Rollisson, of Tooting; Sim, of Foot's Cray; Parker, of the Paradise Nursery, Holloway; and Booth, of Hamburg. It is not a common Fern, being found only in the more complete British collections.

The illustration is taken from a frond forwarded by Mr. Sim, of the Foot's Cray Nursery.



ADIANTUM TRAPEZIFORME.



Portion of mature Frond, under side.

ADIANTUM TRAPEZIFORME.

LINNÆUS. HOOKER. FEE. SWARTZ. WILLDENOW. LINK.
 MOORE AND HOULSTON. KUNZE. J. SMITH.
 PRESL. LINDEN. GALLEOTTI. SEEMAN. SKINNER.

PLATE III. VOL. III.

<i>Adiantum eminens,</i>	PRESL.
“ <i>Klotzschianum,</i>	PRESL.
“ <i>formosissimum,</i>	KLOTZSCH. PLUMIER.
“ “	SLOANE.
“ <i>pentadactylon,</i>	LANGSDORFF AND FISCHER.
“ “	HOOKER AND GREVILLE.
“ <i>rhomboideum,</i>	SCHKUHR.

Adiantum—Dry.

Trapeziforme—Rhomb-shaped leaves.

THIS delicate, yet bold-looking species is well known to all the principal Fern cultivators, but is seldom to be found in small collections. Easily cultivated, and when grown as a large specimen this Fern becomes so attractive an object, that it seems desirable that it should be added to every collection.

An evergreen stove Fern.

VOL. III.

C

Four times pinnate, the pinnules being large and of a brilliant green colour; in form the fronds are ovate-rhomboidal, acuminate, having the apex serrate and subcrenate.

The length of the frond varies from two to four feet.

The stipes, rachis, and pedicels, ebeneous and densely black; near the base are a few thin scales.

Fronds lateral, and attached to a short creeping rhizoma; glabrous.

Sori large, oblong, prominent, with reniform indusium.

Adiantum trapeziforme is a native of the West Indian Islands—Jamaica, Cuba, Mexico, Central America, Caraccas, Brazil, Vera Cruz, and Guatemala.

My thanks are due to Messrs. Backhouse, of York; and to Mr. Ingram, gardener to Earl Brownlow, (Belton,) for plants of this species.

It is in the Catalogues of Messrs. Backhouse, of York; Rolleston, of Tooting; Booth and Son, of Hamburg; Veitch, of Exeter; Sim, of Foot's Cray; A. Henderson, of Pine-apple Place; and Masters, of Canterbury.

The illustration is from a frond sent by Mr. Henderson, of Wentworth.



ADIANTUM LUCIDUM.

A. MACROPHYLLUM.



Portion of mature Frond, under side.

ADIANTUM LUCIDUM.

HOOKE. SWARTZ. PÆPPIG. MOORE AND HOULSTON.
KUNZE. FEE.

PLATE IV.—A. VOL. III.

Adiantum Pæppigianum,
“ *pteridioides*,

PRESL.
LEPH.

Adiantum—Dry.

Lucidum—Shining.

A PRETTY delicate species, requiring skill and attention in order to cultivate it successfully.

This Fern was introduced into England in the year 1844, by Mr. W. Purdie.

This species, in common with most other Ferns, is liable to be attacked by insects. Amongst these the *Coccus adonidum*, known as the mealy bug, is a terrible pest, as it requires much trouble to eradicate. Other species are the *C. hesperidum*, *C. bromeliæ*, (or pine-apple scale,) *C. testudo*, (turtle scale,) and another genus nearly allied to the *Coccus*, the *Aspidiotus nerii*, (or Oleander scale.) The *Thrips adonidum* is much to be dreaded, for it pierces the under side of the leaves, and then deposits a globule of a black glutinous fluid in the wound, stopping up the pores; the leaves infected speedily lose their green colour, and die. The plant louse, (*Aphis*,) is a troublesome insect, which more especially attacks the young stems.

The mite, (*Acarus tellarius*,) or red spider, and *A. holosericeus* are both very destructive, giving the leaves a scorched appearance. Besides these, a large green caterpillar is so rapid in its work of destruction, that if not removed, the fronds are soon all eaten up; whilst several small beetles add their ravages to the above pests of our hothouses, greenhouses, and gardens.

Glabrous; fronds oblong-pinnate, the pinnæ being alternate, and attached by short petioles. Lanceolate, acuminate, coriaceous; the sterile serrated fronds being broadest.

Stipes and rachis covered with ferruginous hairs. Rhizoma creeping.

The colour of the frond a bright olive green, and shining both on the upper and under side; wedge-shaped at the base.

Length of frond twelve inches.

Sori linear, continuous, extending along both margins of the frond to the apex.

A stove Fern.

An inhabitant of Tropical America, the West Indian Islands, and Jamaica.

I am indebted to Mr. Henderson, of Wentworth, for a plant and fronds of this species.

Not common in cultivation; it does not appear to be included in any of the English Nurserymen's Catalogues. It is in that of Messrs. Booth and Son, of Hamburg.

The illustration is from a plant in my own collection.



Portion of mature Frond, under side.

ADIANTUM MACROPHYLLUM.

SWARTZ. BROWNE. SLOANE. HOOKER AND GREVILLE. FEE.
 HUMBOLDT AND BONPLAND. PRESL.
 WILLDENOW. J. SMITH. KUNZE. MOORE AND HOULSTON.

PLATE IV.—B. VOL. III.

Adiantum microphyllum,
 “ *striatum*,

KAULFUSS.
 SCHKUHR.

Adiantum—Dry.

Macrophyllum—Long-leaved.

To the uninitiated, the *Adiantum macrophyllum* may very readily be mistaken for a *Pteris*. The great length of the sori in comparison with the majority of the *Adiantums*, together with the striking difference in the form of the frond itself, makes this Fern a very distinct species.

The fronds are glabrous, pinnate, and the pinnæ are large, sub-sessile, acutely oblong, lobed and slightly dentate; sterile

fronds unequally wedge-shaped at the base. The edge of the fertile fronds is contracted, being reflexed where the sori are situated. The colour of the frond bright green.

Its habit is rather erect, the fronds attached to a creeping rhizoma.

The stipes and young frond are of a delicate pale shining green, mingled with patches of a red colour. When mature, the stipes becomes black and ebeneous. Rachis slightly fusco-pubescent.

Length of frond from twelve to eighteen inches.

Sori linear and continuous.

This is a very beautiful evergreen stove Fern.

A native of the West Indies and Tropical America, Mexico, and Jamaica.

Although not common in general cultivation, it is in many Nurserymen's Catalogues. It is in those of Messrs. Rollisson, of Tooting; E. G. Henderson, of St. John's Wood; A. Henderson, of Pine-apple Place; Booth and Son, of Hamburg; Veitch, of Exeter; Masters, of Canterbury; Sim, of Foot's Cray; and Parker, of Holloway.

Plants of this species have been kindly presented by Mr. Henderson, of Wentworth; Messrs. A. Henderson, of Pine-apple Place; E. G. Henderson, of St. John's Wood; and Booth and Son, of Hamburg. For fronds I am indebted to Mr. Henderson, of Wentworth; Mr. Norman, of Hull; and to Messrs. Booth and Son, of Hamburg.

The illustration is from a frond sent by Mr. Henderson, of Wentworth.



ADIANTUM CUNEATUM.

V—VOL. 3.



Portion of mature Frond, under side.

ADIANTUM CUNEATUM:

KAULFUSS. KUNZE. J. SMITH. LINK. FEE.
SPRENGEL. HOOKER AND GREVILLE. MOORE. WILLDENOW.
LANGSDORFF AND FISCHER. RADDI. PRESL.

PLATE V. VOL. III.

Adiantum—Dry.

Cuneatum—Wedge-shaped.

No one can help admiring the graceful habit and beautiful form of the Brazilian Maiden-hair, (*Adiantum cuneatum*.) It is readily cultivated, requiring less attention than almost any other Fern. Give the plant plenty of pot room, good drainage, and a rich light soil, and do not let the fronds become too wet, and no further care is needed in order to produce a compact, handsome plant, as near perfection in the elegance of its form as it is possible to attain; indeed in this respect it is second to none. It is a species with fronds so fragile and delicate that it will not bear the drip of water, often seen in badly-glazed greenhouses during rainy weather.

A. cuneatum is perhaps more generally cultivated in England

than any other Fern. It is so readily propagated from spores, that wherever it is grown a stock of young plants are soon obtained, even when no care is taken to rear them from sporules, for they spring up in the pots which stand around them.

This Fern was received at the Royal Botanic Gardens, Kew, in the year 1841, from the Royal Botanic Gardens of Berlin.

Fronds glabrous, triquadripinnate, very slender, membranaceous pinnules upon long slender ebeneous petiolules; pinnules wedge-shaped, the superior margin rounded, obtuse lobes, pinnules numerous, sterile lobes serrulate; fertile lobes emarginate. Stipes and rachis shining, ebeneous, and having a plum-coloured bloom upon them.

The fronds, which are more or less erect, are attached to a somewhat tufted rhizoma. They are usually about twelve inches in length. One of my plants has fronds eighteen inches long.

Sori of a moderate size, from four to six on a pinnule; indusium reniform.

A. cuneatum is an evergreen stove species.

An inhabitant of Brazil, having been found at St. Catharine's, on the Organ Mountains, near Rio, and at Uruguay.

My thanks are due to Mr. Ingram, of Belvoir Castle; Mr. Ingram, of the Royal Gardens of Windsor; Messrs. Rollisson, of Tooting; Messrs. Booth, of Hamburg; and to Mr. Stewart, of Sudbury Castle, for plants of this species; and to Mr. Henderson, of Wentworth, for fructified fronds.

The young fronds, when they first come up are pink, when they first expand are of a pale green, and afterwards become a rich green colour. The frond is naked for two thirds of its length, and is somewhat wedge-shaped.

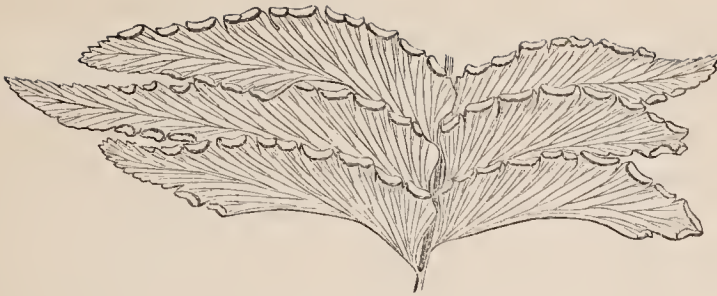
It is in the Fern Catalogues of Messrs. E. G. Henderson, of St. John's Wood; A. Henderson, of Pine-apple Place; R. Sim, of Foot's Cray; Veitch, of Exeter; Parker, of Holloway; Rollisson, of Tooting; Booth and Son, of Hamburg; and E. Cooling, of Derby.

The illustration is from a plant in my own collection.



ADIANTUM CURV.

VI-VOL. 3.



Portion of mature Frond, under side.

ADIANTUM CURVATUM.

KAULFUSS. KUNZE. HOOKER. MOORE. LINK.
FEE. J. SMITH.

PLATE VI. VOL. III.

Adiantum—Dry.

Curvatum—Curved.

THE genus *Adiantum* contains, perhaps, more beautiful Ferns than is found in any other; and of this lovely tribe, but few are more beautiful and graceful than the curved fronds of *Adiantum curvatum*. It is a species seldom met with except in good collections, although it appears to be in most of the Nurserymen's catalogues, and may be purchased at a reasonable price.

It was first introduced to Kew, in the year 1841, having been received from the Royal Botanic Gardens of Berlin.

An evergreen stove species.

Fronds glabrous, pedate, acuminate; the pinnules oblong-ovate, pinnæ curved, imbricate, superior margin and apex serrated. The frond dichotomously divided, tripinnate, the pinnules attached to the midrib by a very short foot-stalk.

The fronds are lateral, and rise out of a short creeping rhizoma.

Length of the frond from eighteen inches to two feet, rachis slightly pubescent, black in colour, except when young—then green; colour of the frond rich green.

Sori oblong, reniform, and solitary, about seven on a pinnule.

Sir William Hooker states in his "Species Filicum," that *Adiantum angustatum* of Kaulfuss is probably a form of this Fern, and also that *A. humile* of Kunze, and *A. tetragonum* of Schrader and Martins, may eventually prove to be varieties of *A. curvatum*. He also remarks that "if any of the pinnules bear sori on the lower as well as on the upper margin, (which I have never known to be the case,) it (*Adiantum curvatum*,) would appear almost identical with *A. tetragonum* of Schrader and Martins." One of my plants has borne sori on the lower margin, near the apex of the pinnule, yet sparingly. I forwarded a frond having sori on the lower margin to Sir William Hooker, and his son (Dr. Hooker,) informs me that there are no fronds exhibiting this character in the extensive herbarium at Kew.

A Brazilian Fern, found in dry woods at Sierra de Santa Brida.

This Fern requires shade, a stove temperature, and not too much water.

My thanks are due to Mr. Henderson, of Wentworth; and to Mr. Masters, of the Exotic Nursery, Canterbury, for plants; and to Mr. Henderson, of Wentworth, for fructified fronds.

It is in the Catalogues of Messrs. E. G. Henderson, of St. John's Wood; A. Henderson, of Pine-apple Place; Veitch, of Exeter; Rollisson, of Tooting; Parker, of Holloway; Sim, of Foot's Cray; and Booth, of Hamburg.

The illustration is from a frond sent by Mr. Henderson, of Wentworth.



ADIANTUM AFFINE.

VII-VOL. 3.



Portion of mature Frond, under side.

ADIANTUM AFFINE.

WILLDENOW. PRESL. HOOKER. ALLAN CUNNINGHAM.
FEE. ENDLICHER.

PLATE VII. VOL. III.

Adiantum setulosum,
" *trapeziforme*,

J. SMITH. KUNZE.
SCHKUHR. FORSTER, *not* LINNÆUS.

Adiantum—Dry.

Affine—Allied.

THIS lovely little maiden-hair Fern is found in the damp woods of New Zealand, and on Norfolk Island. It is easily cultivated, and makes an interesting specimen. Dr. M^c William introduced this species into England in the year 1845. Although not yet generally cultivated, it is, nevertheless, in many of our principal Nurserymen's Catalogues, and may be purchased at a reasonable price.

An evergreen stove species.

The fronds are usually bipinnate, yet occasionally tripinnate, having lanceolate-acuminate pinnæ, the lower ones being bipartite; pinnules dimidiate, oblong, obtusely wedge-shaped at the base, curved, membranaceous, superior margin of the pinnæ bluntly crenate, having the deep sinuses soriferous. Sori from four to eight on a pinnule, indusium hairy and reniform. The pinnules have a few almost microscopical black bristle-

like hairs on their upper surface: occasionally fronds are found with the hairs numerous and large, both on the upper and under surface.

Colour of the frond a vivid green.

Stipes and rachis slender and glabrous, shining and ebeneous; lateral, attached to a creeping rhizoma, which is slender.

Length of frond occasionally twelve inches, more than half of the rachis being naked.

For plants of this species, I am indebted to Mr. Ingram, of Belvoir Castle; Mr. E. G. Henderson, of St. John's Wood; and Mr. Masters, of the Exotic Nursery, Canterbury; and for fronds to Mr. Henderson, of Wentworth.

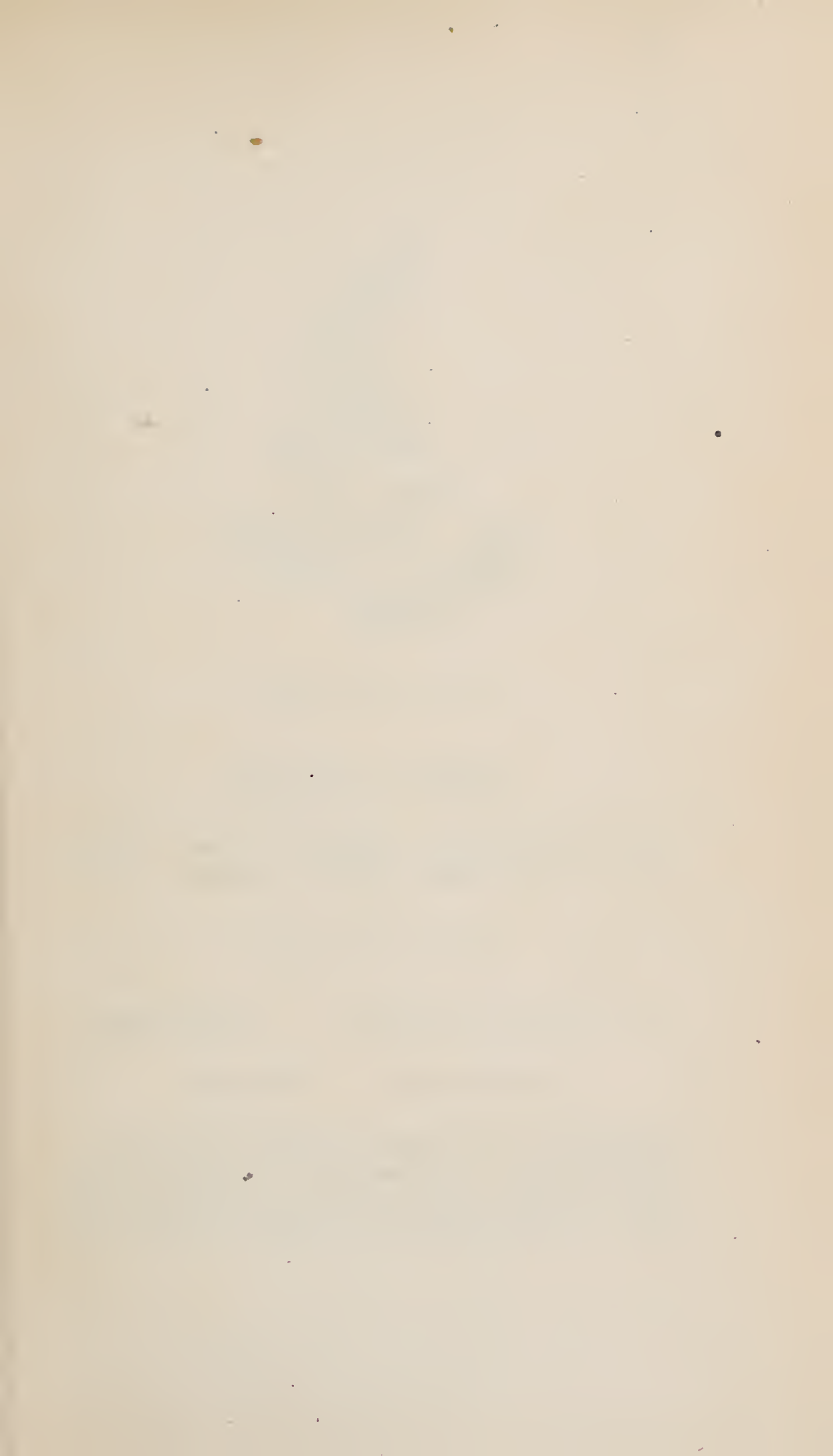
It is in the Fern Catalogues of Messrs. A. Henderson, of Pine-apple Place; E. G. Henderson, of the Wellington Nursery; Rollisson, of Tooting; Sim, of Foot's Cray; Veitch, Jun., of Chelsea; Parker, of Holloway; and E. Cooling, of Derby.

The illustration is from a plant in my own collection.



ADIANTUM ACUMINATUM.

A. LUNULATUM.







Portion of mature Frond, under side.

ADIANTUM ASSIMILE.

SWARTZ. BROWN. WILLDENOW. MOORE AND HOULSTON.
HOOKER. J. SMITH. KUNZE. FEE.

PLATE VIII.—A. VOL. III.

Adiantum trigonum,

LABILLARDIERE. WILLDENOW. PRESL.

Adiantum—Dry.

Assimile—Assimilated.

THE *Adiantum assimile* is a common Fern in Australasia, and one which appears to vary considerably in different situations. The usual form cultivated in this country is that which is found in its wild state growing in low damp situations. A more

robust form grows in localities that are drier; both forms may be seen at the Kew Gardens. Sir William Hooker appears to consider that *A. assimile* and *A. æthiopicum* may be the same plant.

It was introduced into the Royal Gardens, Kew, by A. Cunningham, Esq., in the year 1823.

This species is a greenhouse Fern, yet almost, if not quite, hardy in some sheltered situations. I have had a plant which has lived out of doors for the last five years, but has not, however, flourished. It is a deciduous Fern, and one not uncommonly met with in greenhouses, and often erroneously named *A. cuneatum*. The young fronds are very delicate, and are pale green in colour.

A native of Van Diemen's Land, New South Wales, New Holland, New Zealand, Port Jackson, Encounter Bay, Swan River, etc.

This delicate and beautiful species has glabrous fronds, which are slender; tripinnate; small pinnules, which are rhomboidal, wedge-shaped at the base, and slightly crenate at the margin.

Sori small and reniform.

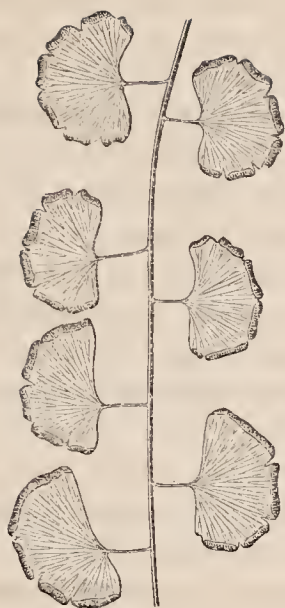
Fronds usually a foot long, of a vivid green colour. Rachis and stipes smooth; fronds lateral, attached to a slender creeping rhizoma.

It is in the Catalogues of Messrs. A. Henderson, of Pine-apple Place; E. G. Henderson, of St. John's Wood; Veitch, of Chelsea; Sim, of Foot's Cray; Parker, of Holloway; Masters, of Canterbury; and Booth, of Hamburg.

I am indebted to Messrs. Booth, of Hamburg, for a plant; and to Mr. Norman, of Hull, and Mr. Henderson, of Wentworth, for fronds.

A species very readily propagated by divisions of the root.

The illustration is from a plant in my own collection.



Portion of mature Frond, under side.

ADIANTUM LUNULATUM.

BURMANN. WILLDENOW. SPRENGEL. SWARTZ. PRESL.
 HOOKER AND GREVILLE. WALLICH. FEE.
 MOORE AND HOULSTON. RETZIUS. RHEED, *not* HOUTTUYN.

PLATE VIII.—B. VOL. III.

Adiantum lunatum,
 “ *arcuatum*,
Pteris lunata,

CAVANILLES. RHEED.
 SWARTZ.
 RETZIUS.

Adiantum—Dry.

Lunulatum—Crescent-leaved.

A RARE but beautiful species, with a slender habit, the pinnules large and of the form of a half-moon. The *Adiantum arcuatum* of Swartz is considered to be a variety of this Fern, and

Sir William Hooker thinks that the Brazilian Fern, (*Adiantum deflectens*, of Martens,) may also prove to be another form of *A. lunulatum*.

A stove Fern, which is deciduous.

A. lunulatum is a native of the East Indies, Malay Islands, Africa, the Islands of Ceylon and Java, Mexico, the Cape de Verde Islands, the Organ Mountains in Brazil, Acapulco, Quorra near Attah, Panama, Minas-Geræa, etc.

The form of the frond is oblong, pinnate, pinnæ alternate, lunate on lengthened petioles or foot-stalks, lobed on the superior margin, blunt at the base. Fronds glabrous; the sterile ones pendulous, and the fertile ones erect. Stipes and rachis, glabrous, ebeneous; the rachis often extending beyond the pinnæ, rooting at the apex.

Length of frond about a foot; colour brilliant green. Terminal, attached to a fasciculate rhizoma.

Sori linear, approximate, frequently becoming confluent.

I have been unable to procure a plant. To Sir William Hooker my thanks are due for fronds.

It appears only to be included in the Fern Catalogue of Messrs. Rollisson, of Tooting.

Propagated by allowing the apex of the fronds to root into the soil.

The illustration is from a frond given to me by Sir William Hooker.



ADIANTUM PUBESCENS.



Portion of mature Frond, under side.

ADIANTUM PUBESCENS.

SCHKUHR. MOORE AND HOULSTON. J. SMITH. KUNZE.
WILLDENOW. LINK, *not* RADDI.

PLATE IX. VOL. III.

Adiantum hispidulum,

“ “

“ *pedatum*,

“ *plicatum*,

SWARTZ. FEE.

HOOKE AND GREVILLE.

FORSTER.

KAULFUSS.

Adiantum—Dry.

Pubescens—Downy.

THIS Fern has been very correctly named *pubescens*, indeed it is as pubescent as it is possible for a Fern to be; the stem being quite rough with the vast number of short brown hairs. It is a handsome Fern, easily cultivated, requiring but little

attention, and producing a noble-looking specimen when properly grown.

It was raised at the Royal Gardens, Kew, in the year 1834, and is now very generally cultivated in Great Britain.

An evergreen greenhouse species, very ornamental.

A native of New Zealand and New Holland.

Fronds pubescent, pedate, branches linear, narrow, acuminate, pinnate; with numerous pinnules, which are dimidiate, bluntly oblong, wedge-shaped at the base, margin crenate.

Length of frond from one foot to eighteen inches. Colour deep green.

Sori small, numerous, from twelve to sixteen on a pinnule; indusium reniform and hairy.

Fronds terminal, nearly all fertile, rising out of a somewhat tufted rhizoma.

My thanks are due to Mr. Ingram, of the Royal Gardens, Windsor, and Mr. Henderson, of Wentworth, for plants of this species; and to the latter gentleman, Mrs. Riley, of Papplewick, and Mr. Norman, of Hull, for fronds.

This species is in the Fern Catalogues of Messrs. E. G. Henderson, of St. John's Wood; Rollisson, of Tooting; A. Henderson, of Pine-apple Place; Veitch, of Exeter; Sim, of Foot's Cray; Masters, of Canterbury; Parker, of Holloway; Booth and Son, of Hamburg; and E. Cooling, of Derby.

The illustration is from a plant in my own collection.



ADIANTUM TENERUM.

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Portion of mature Frond, under side.

ADIANTUM TENERUM.

SWARTZ. HOOKER. PLUMIER. J. SMITH. PRESL.
 MOORE AND HOULSTON. LINK.
 WILLDENOW. PLUKENET. FEE, *not* SCHKUHR.

PLATE X. VOL. III.

<i>Adiantum assimile,</i>	LINK, <i>not</i> SWARTZ.
“ “	ROYAL BOTANICAL GARDENS, BERLIN.
“ <i>formosissima,</i>	OF GARDENS.

Adiantum—Dry.

Tenerum—Tender.

THE *Adiantum tenerum* is a splendid species when well grown, forming itself into a large yet elegant specimen, and well adapted for horticultural exhibitions. The finest example I have ever seen, was grown in a pine stove, at the Kiddleston Gardens, by Mr. Jackson, gardener to Lord Scarsdale. This successful cultivator of plants, deserves the greatest praise for the masterly manner in which he has succeeded in growing this beautiful Fern.

An evergreen stove species.

Fronds glabrous, and branching three or four times; pinnate; the pinnules being membranous, rhomboidal, obtuse, inciso-

lobate; sterile lobes serrulate, the fertile ones entire. The pinnules are petiolate, the base being unequally cuneate.

Sori oblong-reniform and numerous, from ten to thirteen on a pinnule.

The length of the frond from eighteen inches to three feet, nearly two thirds of which is naked. Stipes and rachis ebeneous and glossy, the polished black stem extending even to the foot-stalk of the pinnules, and this produces a great contrast to the brilliant green of the pinnules. The frond is lateral, being attached to a short creeping rhizoma.

There are several varieties of *A. tenerum*; in one the pinnules are shorter, and in another form they are larger.

It is a native of the West Indies, Central America, Guadaloupe, the West Indian Islands, Cuba, St. Vincent, Bahamas, Antigua, Acapulco, Realego, Veraguas, and Jamaica.

It appears to have been introduced into England as long ago as 1793.

My thanks are due to Mr. Parker, of the Paradise Nursery, Holloway; and to Mr. Lamb, gardener to F. Wright, Esq., of Osmaston Manor, for plants of this species; and to Mr. Jackson, gardener to Lord Scarsdale; and to Mr. Norman, of Hull, for fructified fronds.

It is in the Catalogues of Sim, of Foot's Cray; Rollisson, of Tooting; Veitch, of Exeter; Lucombe, Pince, and Co., Exeter; and A. Henderson, of Pine-apple Place.

The illustration is from a plant in my own possession.



ALLANTUM FORMOSUM

XI VOL. 3.



Pinnule of mature Frond, under side.

ADIANTUM FORMOSUM.

R. BROWN. HOOKER. FEE. KUNZE.
J. SMITH. PRESL. MOORE AND HOULSTON. LINK.

PLATE XI. VOL. III.

Adiantum—Dry.

Formosum—Beautiful.

THIS beautiful *Adiantum* attains a large size under proper cultivation, indeed no Fern more clearly points out superior skill in the management of this tribe of plants than this species. It is a greenhouse Fern, yet when cultivated in stove-heat, becomes a larger and in all respects handsomer specimen. Although a well known, and not to be mistaken species with our botanists, it is nevertheless found in our greenhouse collections under various names, such as *affine*, *tenerum*, *pubescens*, *giganteum*, *capillus-veneris*; the name *Adiantum giganteum* must be a gardener's name, for I have not been able to find it in any botanical work. With regard to the other names, they are those of perfectly distinct Ferns.

It appears to have been introduced into the Royal Gardens, Kew, in the year 1823, by the indefatigable botanist A. Cunningham, Esq.

A New Holland Fern, being very common in the neighbourhood

of Port Jackson, yet never found elsewhere, with the solitary exception of Mangatainoka, (New Zealand,) where it was discovered by Mr. Colenso.

A common and easily cultivated species.

A. formosum is an evergreen Fern with branching fronds, four times pinnate. The pinnules are small, membranous, rhomboidal, blunt, inciso-lobate, sterile, serrate. Rachis pubescent; stipes long, scabrous, lateral, ebeneous, and glossy, as well as the petioles; this contrasts greatly with the vivid green of the pinnules.

Sori small, with an oblong kidney-shaped indusium, usually about six on each pinnule.

The height of the frond varies from eighteen inches to three feet; one half of which is naked. The colour pale green. The rhizoma is slender and creeping.

It is a species very readily propagated by spores, and also by divisions of the creeping rhizoma; in short no care is requisite with its propagation, as it is almost certain for seedlings to spring up amongst the different plants in the house in which it is cultivated.

I am indebted to Mr. Lamb, gardener to F. Wright, Esq., of Osmaston Manor, for plants of this species; and to Mr. Henderson, of Wentworth; and to Mr. Norman, of Hull, for fructified fronds.

It is in the Catalogues of Messrs. A. Henderson, of Pine-apple Place; Lucombe, Pince, and Co., of Exeter; Veitch, of Exeter; Masters, of Canterbury; Parker, of Holloway; Rollisson, of Tooting; E. G. Henderson, of St. John's Wood; Sim, of Foot's Cray; Booth and Son, of Hamburg; and Cooling, of Derby.

The illustration is from a plant in my own collection.



ADIANTUM CUNNINGHAMI.

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Portion of mature Frond, under side.

ADIANTUM CUNNINGHAMI.

SIR W. HOOKER. MOORE AND HOULSTON. FEE.
J. D. HOOKER.

PLATE XII. VOL. III.

Adiantum formosum,

“ *affine*,

“ “

CUNNINGHAM.

WILLDENOW, *not* HOOKER.

MOORE. OF GARDENS.

Adiantum—Dry.

Cunninghami—Cunningham's.

IN the same group with *Adiantum Cunninghami*, are two other Ferns—the *A. formosum* of Brown, and the *A. fulvum* of Raoul. Mr. Cunningham, the discoverer, seems to have referred the present Fern to the former of these species; yet, from Sir William Hooker's description, they are seemingly each distinct. They are all natives of New Zealand. Mr. Moore appears to

think that the *A. affine* of Hooker, is the *A. setulosum* of J. Smith; and that *A. Cunninghami* of Hooker, is the true *A. affine* of Willdenow.

An evergreen greenhouse Fern with glabrous fronds.

Discovered by Mr. Allan Cunningham, in the northern island of New Zealand.

Birtipinnate to triquadripinnate, pinnules rather small, dimidiate, oblong-obtuse, obliquely wedge-shaped at the base; superior margin inciso-serrate.

Length of frond from twelve to fourteen inches, width usually about seven inches; deep green in colour; half the stem naked. Stipes and rachis ebeneous and glossy, stipes covered with long red scales, which are larger and more apparent near the base.

Sori numerous, seven to ten on a pinnule, indusium reniform, exceedingly pretty, being dark in the centre, and paler-coloured round the edge.

Fronds lateral, attached to a scaly creeping rhizoma.

This desirable Fern is easily cultivated, and can be procured from Rollisson, of Tooting; E. G. Henderson, of St. John's Wood; Veitch, Jun., of Chelsea; Sim, of Foot's Cray; Parker, of Holloway; and Cooling, of Derby.

I am indebted to Mr. Ingram, of the Royal Gardens, Windsor; Mr. Moore, of the Botanic Gardens, Chelsea; and Mr. Masters, of Canterbury, for plants; and to Mr. Norman, of Hull, and Mr. Henderson, of Wentworth, for fronds.

The illustration is from a plant in my own collection.



ADIANTUM HISPIDULUM.

A. OBLIQUUM.



Portion of mature Frond, under side.

ADIANTUM HISPIDULUM.

SWARTZ. MOORE AND HOULSTON. R. BROWN. KUNZE.
J. SMITH. FEE. HOOKER.

PLATE XIII.—A. VOL. III.

Adiantum pubescens, var.

OF SOME AUTHORS.

Adiantum—Dry.

Hispidulum—Hairy.

THIS pretty dwarf *Adiantum* is not so universally cultivated as it deserves; occupying but little space, and a readily procurable species from most of our principal [Nurserymen, are recommendations, coupled with its distinct appearance and easy cultivation, that should place this plant in the greenhouses of all Fern growers.

Sir William Hooker considers the *Adiantum pubescens* as one of the forms of *A. hispidulum*; indeed, in looking over the extensive herbarium at Kew, it does appear that every transition from the present form to that of *A. pubescens* is there included, in the fronds gathered in different countries and localities. However, the more knowledge we obtain of the foreign Ferns, the more are we impressed with the conviction that our list of species is too much extended; in fact, it becomes an exceedingly difficult matter, if not absolutely impossible, where to draw the line between species and varieties. Botanically speaking, this is an important question, as it is one means

of pointing out the effect of climate and locality upon certain species; on the other hand, horticulturally speaking, the cultivator requires a name by which to recognise a plant; and if, as in the present instance, that name be *A. hispidulum*, it matters but little whether it be a distinct species, or merely *A. pubescens*, var. *hispidulum*. What the cultivator requires is a correct knowledge of the names of the plants that he is growing, in order that he may be enabled to name them properly. If a variety happens to be constant in its peculiarities, it is as valuable to him as a distinct species.

A greenhouse evergreen Fern.

Native of New Zealand and New Holland.

Introduced into the Royal Gardens, Kew, in the year 1824, having been received from Mr. Allan Cunningham.

The form of the frond is bipinnate, the lower branches being bipartite, and above pinnate; the pinnules bluntly oblong, wedge-shaped at the base, and crenate on the margins; the branches small and slender.

The fronds, which are somewhat hairy, are from five to eight inches in length; dark green in colour, the venules marking the frond on the upper surface, and giving it a rough appearance.

Sori small, indusium reniform, from six to eight on a pinnule.

Fronds lateral, attached to a creeping slender rhizoma. Pinnules very small, and having scarcely any petiole. The young fronds are much paler in colour.

Plants have been received from Messrs. A. Henderson, of Pine-apple Place; Messrs. Rollisson, of Tooting; Masters, of Canterbury; and Veitch, of Chelsea.

It may be procured at a moderate price at any of the following Nurseries:—A. Henderson, of Pine-apple Place; Masters, of Canterbury; Parker, of Holloway; E. G. Henderson, of St. John's Wood; Rollisson, of Tooting; Sim, of Foot's Cray; Veitch, Jun., of Chelsea; Booth, of Hamburg; Osborn and Son, of Fulham; and Cooling, of Derby.

The illustration is from a plant in my own possession.



Portion of mature Frond, under side.

ADIANTUM OBLIQUUM.

WILLDENOW. HOOKER. SPRENGEL. KLOTZSCH.
MOORE AND HOULSTON.

PLATE XIII.—B. VOL. III.

Adiantum lucidum,
Pteris lucida,

SWARTZ.
CAVANILLES.

Adiantum—Dry.

Obliquum—Oblique.

AN interesting Maidenhair, of dwarf compact habit, and probably rare in cultivation in this country. From the description of this Fern in Sir William Hooker's "Species Filicum," we find that a number of botanists have noticed the *Adiantum obliquum* in its native habitats, among these, Bredemeyer, Sir R. H. Schomburgk, Dr. Klotzsch, Le Prieur, R. Spruce, and L'Hermonnier, all found it growing wild.

An evergreen stove species.

Introduced into England in the year 1826.

A native of the West Indies and South America, Porto Rico, Caraccas, British Guiana, Columbia, Montague de Mahurie, Cayenne, Tanaii, and Guadaloupe.

An oblong pinnate frond, pinnæ on short petioles, ovate-oblong, acuminate, the margin on upper base truncate and parallel with the rachis, the lower margin dimidiato-cuneate.

Fronds glabrous, twelve inches long, upper surface dark green, beneath glaucous.

Sori numerous, from fourteen to sixteen on a pinnule, oblong, linear, extending along both the upper and lower margin to the apex.

Stipes and rachis rough, being covered with ferruginous down.

The fronds, which are mostly fertile, are lateral, rising out of a creeping rhizoma.

A variety is in cultivation in which the pinnæ are longer and more pointed.

Mr. Parker, of Holloway, includes this Fern in his Catalogue.

No plant has been forwarded to me up to the present date, my thanks are, however, due to Sir William Hooker for fronds.

The illustration is from a frond forwarded by Sir William Hooker.



ADIANTUM PEDATUM.

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Portion of mature Frond—under side.

ADIANTUM PEDATUM.

LINNÆUS. KUNZE. SWARTZ. HOOKER. J. SMITH.
SCHKUHR. SPRENGEL. WILLDENOW. KAULFUSS. CHAMISSE.
FEE. MOORE AND HOULSTON. PRESL.

PLATE XIV. VOL. III.

Adiantum boreale,

PRESL.

Adiantum—Dry.

Pedatum—Pedate.

A USEFUL and ornamental Fern, being equally at home in the open Fernery, or in the stove or greenhouse. It is the most hardy of the *Adiantums*, and in this climate can withstand a cold that would be certain death to the British *Adiantum capillus-veneris*. In this neighbourhood in January, 1854, plants lived out of doors, with the temperature 6° below zero of Fahrenheit's thermometer, whilst near them the same cold killed all the plants of *A. capillus-veneris*. The young fronds are delicate, and, coming up early, those first appearing are not unfrequently cut with spring frosts.

Although so hardy a Fern, still, like the other *Adiantums*,
VOL. III. L

it never grows so luxuriantly out of doors, as it does in stove-heat.

Introduced into the Royal Gardens, Kew, in the year 1809, but probably known in England as early as 1640.

A hardy deciduous Fern, growing in shady woods.

Native of North America, from Virginia to Canada, California to Sitka; Unalashka, and Northern India; about Kamoun, according to Dr. Wallich; and at Jumnotri, according to Dr. Cantor.

Presl considered the Indian Fern distinct from the North American one, yet there seems to be no real difference.

The fronds, which are glabrous, are pedate, the branches being linear; pinnate, pinnules membranaceous, dimidiate, oblong-obtuse, cuneate at the base, the upper margin being lobate, or broadly crenate.

Fronds lateral, on a short creeping rhizoma.

Sori oblong, solitary.

Stipes and rachis ebeneous.

Length of frond from twelve to eighteen inches; colour a delicate green.

For plants of this species, I am indebted to Messrs. Rollisson, of Tooting; the Rev. J. Robinson, of Widmerpool, Nottinghamshire; and for fronds to Mr. Norman, of Hull; Mr. R. J. Gray, of St. Thomas', Exeter; and to Mr. J. Henderson, of Wentworth.

It is in the Fern Catalogues of Messrs. A. Henderson, of Pine-apple Place; Rollisson, of Tooting; Parker, of Holloway; Cooling, of Derby; Kennedy, of Covent Garden; Sim, of Foot's Cray; Bass and Brown, of Sudbury, Suffolk; Masters, of Canterbury; E. G. Henderson, of St. John's Wood; and Osborn and Sons, of Fulham.

The illustration is from a plant in my own collection.



ADIANTUM CAPILLUS-VENERIS.



Portion of mature Frond, under side.

ADIANTUM CAPILLUS-VENERIS.

LINNÆUS. BOLTON. SMITH. HOOKER AND ARNOTT.
 BABINGTON. MACKAY. DEAKIN. NEWMAN. MOORE. SOWERBY.
 JACQUIN. WILLDENOW. PRESL. FEE. PRATT.
 HOOKER AND BAUER. FRANCIS.

PLATE XV. VOL. III.

<i>Adiantum capillus,</i>	SWARTZ. SPRENGEL. LINK. KUNZE.
“ <i>coriandrifolium,</i>	LAMARCK.
“ <i>fontanum,</i>	SALISBURY. GRAY.
“ <i>dependens,</i>	CHAPMAN.
“ <i>repandum,</i>	TAUSCH.
“ <i>Africanum,</i>	BROWN.
“ <i>trifidum,</i>	WILLDENOW.
“ <i>Moritzianum,</i>	LINK. KLOTZSCH. KUNZE.
“ <i>cuneifolium,</i>	STOKES.
“ <i>tenerum</i> var. <i>dissectum,</i>	MARTENS AND GALLEOTTI.

Adiantum—Dry.
 VOL. III.

Capillus-veneris—Venus-hair.
 M

THE "Common Maiden-hair Fern," as the *Adiantum capillus-veneris* is more generally called, is the only British representative of this delicately beautiful family. Although a British Fern, still it grows much more luxuriantly under pot culture than when planted out in the Fernery; a warm humid atmosphere, in a shady situation, being essential to its well-being. In its wild state it is found growing on rocks near the sea. Mr. Moore, in the "Nature-printed Ferns," has given three beautiful illustrations, one from Ireland, another from Devonshire, and a third from Cornwall; the last is from a cultivated plant which I received from Penzance, and which I forwarded to Mr. Moore.

To grow this Fern properly, use abundant drainage and a light compost of turfy peat, with the addition of leaf mould, sand, and pieces of sandstone; the rhizoma should be kept on the surface of the soil.

Frost injures the "Maiden-hair Fern," and a severe frost will kill it; the great cold of 1853 destroyed all the plants in the Fernery at Highfield House. When grown out of doors it is deciduous, and even in a warm greenhouse it should have rest for several months in winter, or the plants will become weak and sickly for the want of rest. Too much stress cannot be laid upon this essential with deciduous Ferns, as the unnatural forced growth of winter only injures them.

A half-hardy deciduous native Fern, growing upon rocks and in caves where there is an abundant supply of moisture. It is never found except near the sea level.

The geographic range is considerable, being found throughout the middle and south of Europe, France, in Asia, India, China, Persia, Arabia, Syria, Siberia, (Caucasus and Ural districts,) Algiers, Egypt, Cape of Good Hope, Mauritius, Bourbon, Madagascar, Algoa Bay, Florida, California, Guatemala, Mexico, Texas, Parra, Caraccas, Trinidad, St. Vincent, Dominica, Jamaica, Sandwich Islands, New Caledonia, New Hebrides, and the Islands of the Mediterranean, Teneriffe, Madeira, Canaries, Cape de Verd, and Azores; England, Wales, Ireland, and Isle of Man and Channel Islands. Dr. Hooker describes the following Indian localities:—Malabar, Ava, Nepal, Simla, Scinde, Khasiya, Bhotan, Assam, Sikkim-Himalaya, Cashmere, Thibet, Beloochistan, Affghanistan, Kamaoun, and Khasya.

In this country it is found in Cornwall at Sir C. Lemon's

seat at Carelew, also at St. Ives and at Hayle; in Devonshire, at Ilfracombe, Rillidge Point, Watermouth, and Brixham; in Glamorganshire, at Dunraven and Barry Island; in Somersetshire I found three plants growing in the fissures of rocks in an air shaft of a stone quarry at Comb Down, in the year 1849; since that time several persons have visited the locality, and in 1855 I myself went through the quarry a second time, but failed, like others, to detect any more plants. In the Isle of Man, in Glen Meay; in Ireland, in Galway, Arran Isles, Kerry, and Clare. It has been said to have been found in the counties of Stafford, Shropshire, Derbyshire, and York, and in Scotland at Argyle and Kincardine, yet these localities require verification.

The fronds are generally of a lengthened triangular or ovate form, occasionally lanceolate or oblong. They are membranaceous, glabrous, sometimes bipinnate, at others tripinnate. Both the pinnæ and pinnules are alternate. The pinnules differ much in form, they are rounded with a truncate base, being obliquely fan-shaped; mostly wedge-shaped at the base, being attached to short petioles.

Sterile lobes toothed on the edge, the fertile lobes blunt.

The veins are a collection of dichotomous ramifications, being radiately forked. Venules disunited at their apices.

Length of frond from six to eighteen inches; colour bright green.

Sori oblong, varying in length according to the width of the lobe. Indusium of the same form, membranaceous, and bearing the spore cases on its under surface.

Stipes and rachis ebeneous and polished, slender, purplish black in colour, having a few scales near the base. Stipes lateral.

Rhizoma ereeping, densely scaly, of a dark brown colour.

There are three varieties described in the "Nature-printed Ferns:"—

1st. var. *Multifidum*, Wollaston.

2nd. var. *Incisum*, Moore.

3rd. var. *Rotundatum*, Moore.

A description of each will be found in the before-mentioned work. Intermediate forms occur, so as to run the different forms into each other.

By some authors *A. Moritzianum* is considered a distinct

species, yet as it varies only in its increased size, no doubt from inhabiting a warmer atmosphere, it is very doubtful whether it be really distinct.

Introduced into the Royal Gardens, Kew, in the year 1793.

From this plant Capillaire is made.

My thanks are due to the following for plants of *A. capillus-veneris*:—Mr. Henderson, of Wentworth; Mr. R. T. Millett, of Penzance; Mr. J. Sidebotham, of Manchester; Mr. Jackson, (gardener to Lord Scarsdale,) of Keddleston, Derby; Mr. Booker, of Matlock; Messrs. Rollisson, of Tooting; and for the form of *A. Moritzianum* to Mr. Henderson, of Wentworth; and for Irish plants to Mr. G. Allcock, Jun., of Nottingham. For fronds I am indebted to Mr. Norman, of Hull; and to Mr. Gray, of St. Thomas', Exeter.

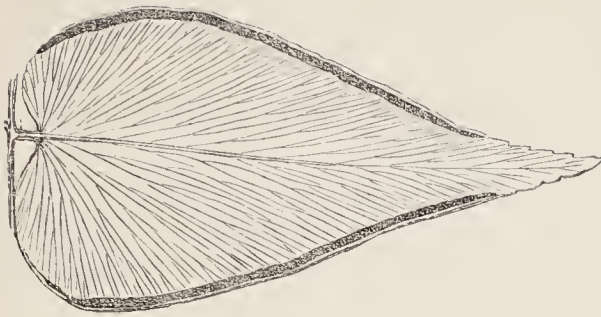
It is in the Catalogues of Messrs. Veitch., Jun., of Chelsea; A. Henderson, of Pine-apple Place; Booth and Son, of Hamburg; Parker, of Holloway; Kennedy, of Covent Garden; Sim, of Foot's Cray; E. G. Henderson, of St. John's Wood; Veitch, of Exeter; Osborn, of Fulham; Rollisson, of Tooting; Bass and Brown, of Sudbury, (Suffolk;) Masters, of Canterbury; Pearson, of Chilwell; Mackintosh, of the Botanic Gardens, Madeira; and Cooling, of Derby.

The illustrations are from my own plants, and from others sent by Mr. Gray, of St. Thomas', Exeter.



ADIANTUM WILSONI.

XVI--VOL. 3.



Portion of mature Frond, under side.

ADIANTUM WILSONI.

HOOKE. MOORE AND HOULSTON.

PLATE XVI. VOL. III.

Hewardia Wilsoni,

SMITH. ? FEE.

Adiantum—Dry.

Wilsoni—Wilson's.

A SINGULAR and delicate Fern, discovered in dry, shady, gravelly places in Jamaica, by Mr. Wilson, the Curator of the Bath Botanic Gardens, Jamaica, and named by Sir W. Hooker, after this botanist. It is a very distinct species.

An evergreen stove Fern.

Only found in Jamaica.

Fronds glabrous, pinnate, the pinnæ somewhat ovate, petiolate, alternate, caudate at the base, coriaceous; the sterile fronds serrate at the margin, petiolate. Three to five pinnæ on a frond. Costa ebeneous at the base. Veins forked and anastomosing. Stipes and rachis ebeneous and glabrous.

Sori linear, being continuous on both margins nearly to the apex.

VOL. III.

N

Fronds lateral, adherent to a creeping rhizoma.

Length of frond twelve inches. Colour of frond dark green above, paler beneath. The sterile fronds broader.

A difficult Fern to grow successfully, requiring much care, and a porous stony soil.

It can be procured from Messrs. Rollisson, of Tooting; and Mr. Sim, of Foot's Cray.

My thanks are due to Mr. Sim, of Foot's Cray, for a plant; and to Sir W. Hooker, and to Mr. Sim, for fronds.

The illustration is from a frond sent by Sir W. Hooker.



ADIANTUM PULVERULENTUM.

XVII-VOL. 3.



Portion of mature Frond, under side.

ADIANTUM PULVERULENTUM.

LINNÆUS. WILLDENOW. SWARTZ. PLUMIER.

PLATE XVII. VOL. III.

<i>Adiantum umbrosum,</i>	WILLDENOW.
“ <i>monosoratum,</i>	WILLDENOW.
“ <i>Kunzeanum,</i>	PRESL.
“ <i>rigidum,</i>	SCHOTT, MS.

Adiantum—Dry.

Pulverulentum—Dusty.

AN interesting and uncommon species, only to be found in the larger collections.

It is a native of the islands in the West Indies, Mexico, New Grenada, Guiana, and Brazil.

An evergreen stove Fern.

VOL. III.

O

Introduced into England in the year 1793.

The fronds, which are bipinnate and broadly ovate in form, have somewhat lanceolate pinnæ, the pinnules being numerous, close together, and are gradually smaller in size as they approach the apex of the frond. Slightly petiolate, more membranaceous than coriaceous, oblong-dimidiata, the upper base being parallel and close to the rachis; the upper pinnules very small and almost obovate.

Rachis and stipes covered with ferruginous hairs, so as to be quite rough.

Length of frond from twelve inches to two feet; colour full green, and having a glossy appearance.

Sori linear and continuous, solitary, generally only occupying a portion of the superior margin.

Sir W. J. Hooker remarks that it is a more tender and membranaceous plant than *Adiantum villosum*, with smaller, more copious, and much denser pinnules, gradually tapering to a narrow point.

My thanks are due to Dr. J. D. Hooker, of the Royal Gardens, Kew, and to M. Schott, of the Imperial Gardens of Schonbrunn, near Vienna, for plants and fronds of this species.

I am not aware that it is in any of the Nurserymen's Catalogues.

The illustration is from a plant in my own collection.



ADIANTUM VARIUM.

XVIII--VOL. 3.



Portion of mature Frond, upper side.

ADIANTUM VARIUM.

HOOKE. WILLDENOW.

PLATE XVIII. VOL. III.

<i>Adiantum fruticosum,</i>	KUNZE, (<i>not</i> LINK <i>or</i> SPRENGEL.)
“ <i>tetraphyllum,</i>	SIEBER, (<i>not</i> WILLDENOW, KLOTZSCH,
	<i>or</i> MIGUEL.)
“ <i>villosum,</i>	LINNAEUS. WILLDENOW. SWARTZ.
“ “	SCHKUHR.

Adiantum—Dry.

Varium—Various.

A HANDSOME Fern, and one pretty well distributed in our English gardens. It is rather delicate, requiring care in its cultivation, and to be kept in a very warm atmosphere.

Some authorities place *Adiantum varium* and *A. villosum* as two different Ferns, yet they seem to run so closely into each other, that it is impossible to say which belongs to which; they have therefore been here considered as one and the same Fern, especially as Humboldt and Kunth have remarked, “*an idem cum Adianto villoso.*” Sir W. J. Hooker, although he

has described both species, still, in the remarks regarding *A. varium*, speaks of the probability of its being the same Fern with *A. villosum*.

An evergreen stove Fern.

Native of Venezuela, where it was found by Humboldt and Kunth.

Fronds pinnate and bipinnate, having pinnæ of a trapezoid-oblong acuminate shape, sub-petiolate, glabrous, acutely serrated.

Rachis hirsute with filiform scales.

Length of frond twelve to eighteen inches.

Sori linear and continuous.

Introduced into England in the year 1820.

For plants of this species I am indebted to Mr. Pass, gardener to Mr. Brocklehurst, of The Fence, near Macclesfield; Mr. Veitch, of Chelsea; and to Mr. A. Henderson, of Pine-apple Place; and for fronds to Dr. Hooker, of the Royal Gardens, Kew; Mr. J. Henderson, of Wentworth; Mr. Downes, of Hillsbro', Ilfracombe; and to Mr. Norman, of Hull.

It is in the Catalogues of Messrs. A. Henderson, of Pine-apple Place; Rollisson, of Tooting; Veitch, of Exeter; Parker, of Holloway; and Sim, of Foot's Cray.

The illustration is from a frond sent by Dr. Hooker.



ADIANPUM FULVUM.



Portion of mature Frond, under side.

ADIANTUM FULVUM.

RAOUL. HOOKER. J. SMITH. FEE.

PLATE XIX. VOL. III.

Adiantum—Dry.

Fulvum—Tawny.

AN interesting Fern, with sori very much resembling the *Adiantum Cunninghami*, whilst the plant itself is strikingly distinct. Most probably it is very rare in England, as I am not aware that it is in cultivation anywhere except at Kew.

An evergreen greenhouse Fern.

A native of New Zealand, where it has been found growing abundantly by Dr. Sinclair, Dr. J. D. Hooker, Mr. Raoul, and Mr. Colenso.

The fronds are ovate-deltoid, sub-pedately triquadripinnate, the secondary pinnæ being of a lanceolate-acuminate form; pinnules small, chartaceous, sub-glossy, glabrous, dimidiato-oblong-obtuse, obliquely wedge-shaped at the base, broadly cultriform, superior base truncate, superior margin and obtuse

apex lobed, the lobes being emarginate, obtuse, sinuses of the lobes soriferous; sori large and numerous, from eight to twelve on a pinnule, involucre orbicular-cordate, the sinus deep and narrow. Stipes very scabrous; rachis scabrous and downy, with fulvous hairs.

Length of frond twelve inches; colour bright olive green.

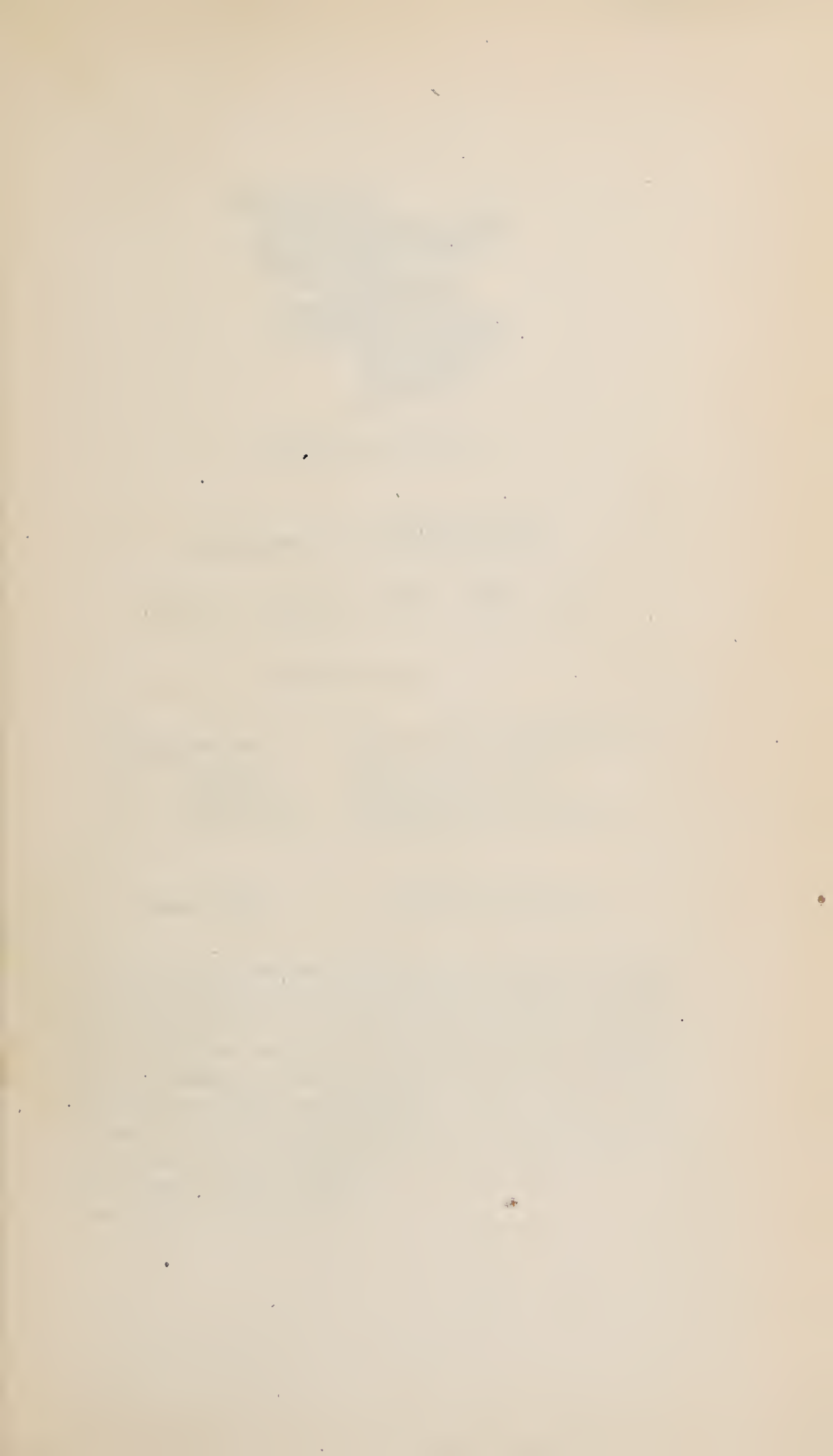
My thanks are due to Mr. J. Smith, the Curator at the Royal Gardens, Kew, for fronds of this species.

It is not in any of the Nurserymen's Catalogues.

The illustration is from a plant grown in the Kew Gardens, and forwarded by Mr. Smith.



ADIANTUM INTERMEDIUM.







Portion of mature Frond, upper side.

ADIANTUM INTERMEDIUM.

SWARTZ. HOOKER. PRESL. KUNZE. FEE.

PLATE XX. VOL. III.

Adiantum fovearum,
 “ *Brasiliense*,
 “ *argutum*,
 “ *triangulatum*,

RADDI. LINK. MOORE & HOULSTON.
 LINK. (*Not of RADDI.*)
 SPLITZGERB.
 MORICAUD. (*Not of KAULFUSS or*
 HOOKER.)

Adiantum—Dry.

Intermedium—Intermediate.

A HANDSOME *Adiantum*, deserving a place in every collection, its bold prominent sori and hirsute stems render this species an interesting Fern. It is perhaps more generally cultivated than growers are aware of, being sometimes seen under the name of *cristatum*, occasionally that of *varium* and *villosum*, although these species are very distinct from *Adiantum intermedium* by having continuous sori.

Introduced into this country in the year 1824, and into the Royal Gardens, Kew, in 1840.

An evergreen stove species.

A native of Tropical America,—Brazil, Ilhios, Guiana, Amazon, New Grenada, Mexico, Guayaquil, Peru, West Indian Islands, Jamaica, Trinidad, Dominica, and Guadaloupe.

The fronds are bipinnate, pinnæ oblong-acuminate, from five to seven lateral ones, horizontal, the terminal one being elongated; pinnules ovate-oblong, obtusely acuminate, wedge-shaped at the base, the upper base being parallel with the rachis. Sterile pinnules obscurely lobate, serrate. The fertile pinnules have a serrated apex.

Stipes angular, ebeneous, rachis ferrugineo-hirsute, attached to a creeping elongate caudex.

Sori large, oblong, numerous.

Length of frond from one to two feet; colour deep green.

There are several Ferns very nearly allied to this. *A. prionophyllum*, Hooker; *A. fructuosum*, Hooker; *A. triangulatum*, Kaulfuss.

My thanks are due to Messrs. Rollisson, of Tooting, for a plant of this Fern; and to Messrs. Henderson, of Wentworth; Mrs. Riby, of Papplewick; Messrs. Booth, of Hamburg; Messrs. Stansfield and Son, Vale Gardens, Todmorden; and Mr. Norman, of Hull, for fronds.

It is in the Fern Catalogues of Messrs. Booth, of Hamburg; Masters, of Canterbury; Rollisson, of Tooting; Veitch, Jun., of Chelsea; Stansfield, of Todmorden; and Parker, of Holloway.

The illustration is from a frond given to me by Mr. J. Smith, the able Curator of the Royal Gardens, Kew.



ADIANTUM CULTRATUM.

XXI—VOL. 3.







Portion of mature Frond, under side.

ADIANTUM CULTRATUM.

J. SMITH. HOOKER. PRESL.

PLATE XXI. VOL. III.

<i>Adiantum pentadactylon</i> ,	OF GARDENS. (<i>Not of LANGSDORFF AND</i>
“ <i>trapeziforme</i> ,	FISCHER, <i>nor of HOOKER & GREVILLE.</i>)
	FEE.

Adiantum—Dry.

Cultratum—Sharp.

A VERY handsome Fern, in the same section with *Adiantum trapeziforme*, yet seemingly very distinct, not only in the form of the pinnules, but in the colour of the indusium; in *trapeziforme* it is black, whilst in *cultratum* it is scarlet. The Fern found in gardens under the name of *A. pentadactylon*, is the present species. When plenty of room is given it, this species grows into a handsome plant, and is not at all difficult to cultivate.

An evergreen stove Fern.

Native of St. Vincent, St. Catharine's, and Brazil.

The fronds, which are large; are decompose; the pinnules being chartaceo-membranaceous, approximate, petiolate, spreading, narrow, oblong, obliquely rhomboid, obtusely lobed, and subincised, upper base truncate, and parallel with the rachis,

lower base elongated and curved; lobes soriferous; involucre oblong-reniform, and scarlet. Stipes, rachis, and pedicels ebenous and black.

Length of frond two feet; colour pale green.

My thanks are due to Messrs. Veitch, Jun., of Chelsea, and Messrs. Rollisson, of Tooting, for plants of this species; and to Mr. Henderson, of Wentworth; Dr. Hooker, of Kew; Mr. Smith, of Kew; Mr. T. Moore, of the Chelsea Botanic Gardens; Mr. Sim, of Foot's Cray; and Mr. Norman, of Hull, for fronds.

It is in the Fern Catalogues of Messrs. Veitch, Jun., of Chelsea; Rollisson, of Tooting; Henderson, of Pine-apple Place; Parker, of Holloway; Sim, of Foot's Cray; and Cooling, of Derby.

The illustration is from a plant in my own collection.



ADIANTUM CRISTATUM.

XXII—VOL. 3.





Portion of mature Frond, under side.

ADIANTUM CRISTATUM.

LINNÆUS. WILLDENOW. SWARTZ. HOOKER. J. SMITH.
PRESL. KUNZE. KAULFUSS. FEE.

PLATE XXII. VOL. III.

Adiantum striatum, SWARTZ. JACQUIN. PLUMIER. KUNZE.

Adiantum—Dry.

Cristatum—Crested.

A HANDSOME yet imperfectly known stiff-growing species, indeed in cultivation the name means almost anything; *varium*, *villosum*, *serrulatum*, *denticulatum*, *intermedium*, etc., are each to be met with under the name of *cristatum*.

An evergreen stove Fern.

Native of Jamaica, Cuba, and Caraccas, being a most abundant Fern in the first-mentioned island.

The form of the frond is subtriangular-ovate, bi-subtripinnate; pinnæ lanceolate, caudately acuminate, the terminal one elongated and very narrow, and the lowest pair mostly bipartite; pinnules horizontal and approximate, obliquely oblong-ovate, acute, antrorsely subfalcate, inferior base cuneate, superior base

- 52.—*Denticulatum*, Swartz. Jamaica.
- 53.—*Proximum*, Gaudichaud. Brazil.
- 54.—*Lancea*, Linnæus. Surinam. Rare.
- 55.—**Pedatum*, Linnæus. North America.
- 56.—*Tetragonum*, Schrader. Brazil. Rare.
- 57.—**Curvatum*, Kaulfuss, Brazil.
- 58.—*Humile*, Kunze. Tocache.
- 59.—*Patens*, Willdenow. Caraccas.
- 60.—*Lindsæa*, Cavanilles. Quito. A dubious species.
- 61.—*Angustatum*, Kaulfuss. Brazil. A dubious species.
- 62.—*Flabellulatum*, Linnæus. China.
- 63.—**Hispidulum*, Swartz. New Holland.
- 64.—*Le Prieuri*, N. S. Berbice.
- 65.—**Affine*, Willdenow. New Zealand.
- 66.—**Trapeziforme*, Linnæus. West Indies.
- 67.—**Cultratum*, J. Smith. St. Vincent.
- 68.—*Subeordatum*, Swartz. Brazil.
- 69.—*Peruvianum*, Klotzsch. Peru. Handsome.
- 70.—*Mathewsianum*, Hooker. Peru. Rare.
- 71.—*Sinuosum*, Gardner. Brazil.
- 72.—*Amplum*, Presl. Mexico.
- 73.—**Capillus-veneris*, Linnæus. England.
- 74.—*Æthiopieum*, Linnæus. South Africa. This is in cultivation in England, but it approaches so near to *assimile* that it has not been figured. It is a doubtful species.
- 75.—**Assimile*, Swartz. Van Diemen's Land.
- 76.—*Pulehellum*, Blume. Java.
- 77.—*Fumarioides*, Willdenow. Bourbon.
- 78.—*Digitatum*, Presl. Brazil. Doubtful.
- 79.—*Emarginatum*, Bory. Bourbon. Handsome species.
- 80.—**Cuneatum*, Langsdorff and Fischer. Brazil.
- 81.—*Glaucophyllum*, Hooker. Mexico.
- 82.—*Vcnustum*, Don. India.
- 83.—*Fragile*, Swartz. Jamaica.
- 84.—*Exeisum*, Kunze. Chili.
- 85.—**Coneinnum*, H. B. K. Central America.
- 86.—*Scabrum*, Kaulfuss. Chili. A dubious species.
- 87.—*Chilense*, Kaulfuss. Chili. A handsome species.
- 88.—*Sulphureum*, Kaulfuss. Chili.
- 89.—*Sessilifolium*, Hooker. Peru. A handsome species.

- 90.—*Parvulum*, Hooker, Galapagos.
 91.—*Henslovianum*, Hooker. Galapagos. A handsome species.
 92.—*Speciosum*, Hooker. Peru. A handsome species.
 93.—**Tenerum*, Swartz. Jamaica.
 94.—**Cristatum*, Linnæus. Jamaica.
 95.—*Microphyllum*, Kaulfuss. Jamaica.
 96.—*Kunzcanum*, Kaulfuss. Jamaica.
 97.—*Crenatum*, Willdenow. Hispaniola.
 98.—*Politum*, H. B. Cumana. A dubious species.
 99.—*Pyramidale*, Willdenow. America.
 100.—*Polyphyllum*, Willdenow. South America. A dubious species.
 101.—*Macrocladum*, Kaulfuss. Peru. Rare.
 102.—*Wilcsianum*, Hooker. Jamaica.
 103.—*Brasiliense*, Raddi. Brazil. Under this name there are several Ferns in cultivation in England; most of them are found to be *intermedium*, yet there are two or three apparently different in many respects, yet as considerable obscurity hangs over them, they are reserved for the supplementary volume. It is doubtful whether any of them could be referred to *Brasiliense* of Raddi.
 104.—*Cardiochlæna*, Kunze. Caraccas.
 105.—*Lobbianum*, Hooker. Java.
 106.—**Formosum*, Brown. Port Jackson.
 107.—**Cunninghami*, Hooker. New Zealand.
 108.—**Fulvum*, Raoul. New Zealand.

DUBIOUS SPECIES.

Rotundatum, Kunze.
Cupense, Thunberg.
Decipiens, Desvaux. Java.
Papyraceum, Desvaux, Mauritius.
Cassioides, Desvaux. Tropical America.
Rotundatum, Desvaux. Peru.

For lengthened descriptions of the above species the reader is referred to Part V of Sir W. J. Hooker's "Species Filicum."

GENUS II.

ONYCHIUM. KAULFUSS.

THE genus *Onychium* is small, and although Fee in his "Genres de la Famille des Polypodiacees" enumerates the following, still only one, namely *O. lucidum*, appears to be cultivated in Great Britain.

<i>Onychium lucidum</i> ,	HOOKEER.
" capense,	KAULFUSS.
" japonicum,	KUNZE.
" auratum,	KAULFUSS. (<i>Pteris chrysosperma</i> , HOOKEER.)
" carvifolium,	FEE. (<i>Lomaria</i> ? WALLICH.)
" melanolepis,	KUNZE. (<i>Allosorus cuspidatus</i> , JAUBERT AND SPACH.)
" chærophyllum,	FEE. (<i>Allosorus</i> , MARTENS AND GALLEOTTI.)
" chinense,	GAUD.
" robustum,	FEE. (<i>Allosorus</i> , KUNZE.)

Fronds deltoid, elongate, acuminate, decomposed; veins simple, direct, free on their apices, combined by a transverse sporangiferous receptacle, which is formed in the axis of a linear and slightly intramarginal indusium. Indusium plane, the free margins of each conniving over the midrib, and splitting open along the centre, as it were by a longitudinal suture. Sori short, linear, continuous, eventually becoming confluent, and covering the whole disc between the two indusia. Rhizoma creeping.

Formerly *Onychium* was considered by some authorities a *Pteris*, and by others a *Lomaria*, but the distinct habit and dissimilar structure of the fertile fronds have induced botanists to form a genus *Onychium*. This genus is distinguished from *Pteris* by the fertile segments being so narrow that the two

sori are soon confluent, and the free margin of the two indusia wrap over the midrib, and the sori eventually covers the whole disc, as in the *Acrostichums*. It is distinguished from *Lomaria* in the sporangia being seated in the immediate axis of the indusium, (in which respect it resembles *Pteris*,) whilst in *Lomaria* the receptacle is broad, and occupies a great portion of the space between the midrib and the axis of the indusium.



ONYCHIUM LUCIDUM.



Portion of mature Frond, under side.

ONYCHIUM LUCIDUM.

SPRENGEL. MOORE AND HOULSTON. J. SMITH. HOOKER.
KUNZE.

7

PLATE XXIII. VOL. III.

Leptostegia lucida,
Cheilanthes lucida,
Onychium japonicum,

D. DON.
WALLICH.
OF GARDENS.

Onychium—A claw.

Lucidum—Shining.

A BEAUTIFUL, slender-looking, yet vigorous-growing Fern, requiring as little management as possible, and producing a large and handsome plant, if afforded abundant pot-room.

Easily propagated, both by divisions of the creeping rhizoma and from spores, young plants coming up in all the pots in its neighbourhood.

An evergreen warm greenhouse or stove species.

A native of the East Indies and Nepal.

Received at the Royal Gardens, Kew, in the year 1844, from Mr. H. Lowe.

The fertile fronds are glabrous, slender, with remote pinnae, the pinnules triangular in form; segments small, linear-acuminate,

and very narrow. The sterile fronds are glabrous, slender, somewhat triangular, triquadripinnate, the pinnules being also triangular; segments long, and the apex dentate. Both fronds are lateral, and adherent to a creeping rhizoma. The sterile fronds are usually a foot in length, and the fertile ones fifteen inches; a plant in my collection has fronds much larger, most of them from two feet to two feet and a half.

The stipes a foot in length, and bright green in colour.

Sori linear, continuous, extending along each segment, but neither reaching apex nor base, eventually becoming confluent.

For plants of this species I am indebted to Messrs. A. Henderson, of Pine-apple Place Nursery, and to Messrs. Rollisson, of Tooting.

It is in the Fern Catalogues of Messrs. Veitch, Jun., of Chelsea; Masters, of Canterbury; Rollisson, of Tooting; A. Henderson, of Pine-apple Place; Sim, of Foot's Cray; Veitch, of Exeter; Kennedy, of Covent Garden; and Cooling, of Derby.

The illustration is from a plant in my own collection.

GENUS III.

PLATYLOMA. J. SMITH.

THIS family takes its name from the broad sori, namely, *platys*, broad, and *loma*, a margin.

Fronds pinnate or bipinnate. Stipes usually ebeneous, smooth, pillose, or squamulous. Pinnæ articulated with the rachis.

Sori linear-oblong, continuous, eventually becoming confluent, and forming a broad belt round the margin. Indusium narrow, and transversely attached to the outer margin of the compound receptacle.

Veins forked; venules direct, their apices being free and sporangiferous.

In habit they mostly vary but little from those of *Cassebeera* and *Adiantum*, agreeing with the former in the ebeneous character, yet differing from it in the broad sorus; and differing from the latter by the compound receptacle of *Platyloma* not being so much changed in its texture, nor reflexed, as is the case with *Adiantum*.

Although a small genus, still it is as interesting as perhaps any other of the tribes of Ferns. Some authors adopt the name of *Pellæa* instead of *Platyloma*. Fee enumerates a score species, whilst Moore gives eight as cultivated in this country. Kunze, who places them as *Allosorus*, gives fifteen species, and in these he includes the British *A. crispus*.

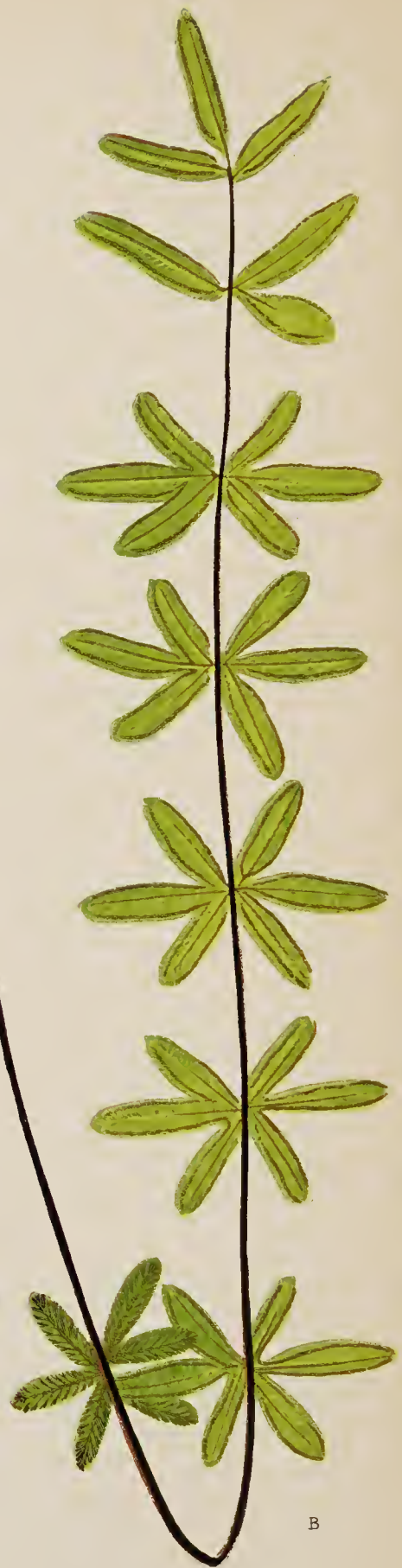
Amongst *Platyloma* no one can help being struck with the beauty of *calomelanos* of Presl, *flexuosa* of Kaulfuss, the *rotundifolia* of Kunze, or the *ternifolia* of Kunze.

This family are very subject to the attack of thrips, more especially the species *falcata* and *rotundifolia*.

We have no British example.



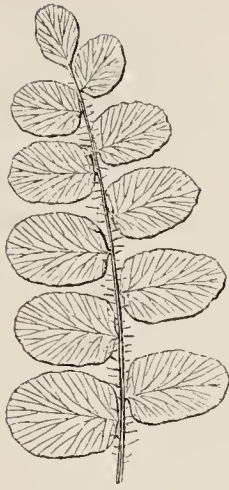
A



B

PLATYLOMA ROTUNDIFOLIA.

P. TERNIFOLIA.



Portion of barren Frond, upper side.

PLATYLOMA ROTUNDIFOLIA.

J. SMITH. FORSTER. MOORE AND HOULSTON. SCHKUHR.

PLATE XXIV.—A. VOL. III.

Allosorus rotundifolius,
Pteris rotundifolius,

KUNZE.
FORSTER.

Platyloma—Broad-edge.

Rotundifolia—Round-leaved.

A BEAUTIFUL dwarf pendulous species, deserving of universal cultivation. A species readily grown and propagated, and capable of making a very handsome plant, if allowed plenty of pot-room.

An evergreen greenhouse Fern.

Native of New Zealand.

Introduced into the Royal Gardens, Kew, by Mr. John Edgerley, in the year 1841.

The fronds are linear-pinnate, reclining, the pinnæ being

sub-rotund or oblong-elliptical in form, rather obtuse, cordate at the base, glabrous, coriaceous, slightly crenate on the margin.

Rachis and stipes densely crowded with scales of a brown colour, lateral, adhering to a creeping rhizoma.

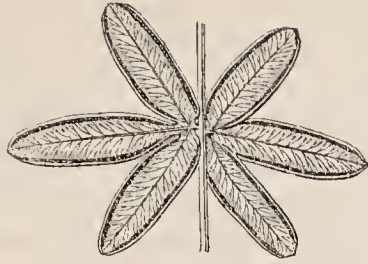
Length of frond from twelve to eighteen inches; colour dull green.

Sori linear, continuous, very broad. Indusium very narrow.

For plants of this species my thanks are due to Mr. Ingram, of the Royal Gardens, Windsor, and to Mr. Norman, of Hull; and for fronds to Mr. Henderson, of Wentworth; Mr. Clark, of the Glasgow Botanic Gardens; Mr. Gray, of St. Thomas', Exeter; Mr. Jeans, of Grantham; Mr. Norman, of Hull; and Messrs. Booth, of Hamburg.

It is in the Fern Catalogues of Messrs. E. G. Henderson, of St. John's Wood; Veitch, Jun., of Chelsea; Rollisson, of Tooting; A. Henderson, of Pine-apple Place; Parker, of Holloway; Sim, of Foot's Cray; Stansfield, of Todmorden; Veitch, of Exeter; Kennedy, of Covent Garden; and Cooling, of Derby.

The illustration is from a plant in my own collection.



Portion of mature Frond, under side.

PLATYLOMA TERNIFOLIA.

J. SMITH. MOORE AND HOULSTON. HOOKER AND GREVILLE.

PLATE XXIV.—B. VOL. III.

<i>Pteris subverticillata</i> ,	CAVANILLES.
<i>Pellaea ternifolia</i> ,	LINK. J. SMITH. FEE.
<i>Pteris ternifolia</i> ,	CAVANILLES. HOOKER & GREVILLE.
“ <i>Peruviana</i> ,	POIR.
“ <i>subverticillata</i> ,	SWARTZ. WILLDENOW.
<i>Allosorus subverticillatus</i> ,	PRESL.
“ <i>ternifolius</i> ,	KUNZE.

Platyloma—Broad-edge.

Ternifolia—Three-leafleted.

A STRIKINGLY beautiful rather pendulous Fern, whose pinules are so placed as to form hexagonal stars one above another all along the frond. It is a dwarf species, and perhaps less easily cultivated than the other members of this lovely family, yet when properly managed makes a beautiful little plant, and being so different in form and general appearance as to strike any one who sees it with admiration.

Received at the Royal Gardens, Kew, from Mr. D. Cameron, in the year 1841.

An evergreen stove Fern.

Native of Mexico.

Fronds glabrous, linear, pinnate, reclining, pinnæ opposite or alternate, about ten pairs, sessile, trilobed, the pinnæ nearest the apex are usually bilobed, cordate at the base, coriaceous, having a cartilaginous margin: ultimate pinnæ trilobed.

Rachis and stipes purple, being covered with a plum-like bloom; stipes pubescent, with long and thin whitish scales; terminal, adherent to a short creeping rhizoma, which is scaly.

Sori linear, continuous; indusium very narrow.

Length of frond from twelve to eighteen inches, colour a blue green.

My thanks are due to Messrs. Rollisson, of Tooting, for plants of *Platyloma ternifolia*, and to Mr. Norman, of Hull, and Mr. Henderson, of Wentworth, for fronds.

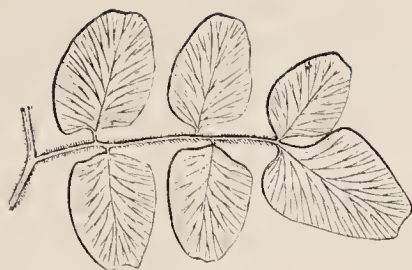
It is in the Fern Catalogues of Messrs. Rollisson, of Tooting; Parker, of Holloway; Sim, of Foot's Cray; and Booth, of Hamburg.

The illustration is from a plant in my own collection.



PLATYLOMA FLEXUOSA.





Portion of mature Frond, upper side.

PLATYLOMA FLEXUOSA.

J. SMITH. KAULFUSS. MOORE. HOOKER.

PLATE XXV. VOL. III.

Pellaea flexuosa,
Allosorus flexuosus,
Pteris flexuosa,
 " *cordata*,

LINNÆUS. FEE. J. SMITH.
 KAULFUSS. KUNZE.
 PRESL. KAULFUSS. HOOKER. WILLDENOW.
 LINK, (not CAVANILLES.)

Platyloma—Broad-edge.

Flexuosa—Zigzag.

ONE of the most beautiful of the exotic Ferns; its climbing habit, the splendid green colour of its pinnules, elegant habit, and broad dark sori are all recommendations that should place the *Platyloma flexuosa* in every collection, however small.

It does not seem difficult to manage, but should be kept clear from thrips, which seem particularly fond of the *Platylomas*, and can soon weaken the plants so materially, that it occupies months for them to regain their strength.

A deciduous warm greenhouse or stove Fern.

Native of Peru and Columbia.

Raised from spores at the Royal Gardens, Kew, in the year 1838.

The fronds are three or four times pinnate, the branches

being in pairs, about a quarter of an inch apart, and each pair three inches apart; somewhat twining in habit, with alternate zigzag pubescent branches. The pinnules, which are small, are ovate in form, glabrous, membranous, semitransparent, deciduous, cordate at the base, the margin being cartilaginous.

Rachis and stipes green when young, eventually becoming brown, lateral, adherent to a creeping rhizoma.

Length of frond from four to six feet; colour delicate pale green.

Sori linear, continuous, at first black, then changing to reddish brown, not continued round the apex or base. Indusium very narrow.

My thanks are due to Mr. Norman, of Hull, and to Mr. Stratton, of the Cambridge Botanic Gardens, for plants of this Fern; and to Mr. Norman, and to Mr. Henderson, of Wentworth, for fronds.

It is in the Fern Catalogues of Messrs. Veitch, Jun., of Chelsea; Booth, of Hamburg; Rollisson, of Tooting; Parker, of Holloway; A. Henderson, of Pine-apple Place; Sim, of Foot's Cray; Stansfield, of Todmorden; and Kennedy, of Covent Garden.

The illustration is from a plant in my own collection.



1888. CALOMELANOS.

XXVI—VOL. 3.



Portion of barren Frond, under side.

PLATYLOMA CALOMELANOS.

J. SMITH. MOORE AND HOULSTON. SWARTZ.

PLATE XXVI. VOL. III.

Pteris calomelanos,

“ “

Pellæa calomelanos,

“ “

Allosorus calomelanos,

Pteris hastata,

PRESL. SWARTZ.

SCHLECTENDAL.

LINK. SWARTZ. WILLDENOW.

SCHLECTENDAL. FEE.

PRESL. KUNZE.

THUNBERG, (*not of* LINNÆUS OR SWARTZ.)

Platyloma—Broad-edge.

Calomelanos—Beautiful-dark.

WE are apt to expend all our praise on one species, so that nothing shall be left to say in commendation of that which follows our greatest favourite; we have spoken thus of *Platyloma flexuosa*, *P. rotundifolia*, and *P. ternifolia*, yet whatever we may have said of them our meed of praise must not be withheld from the *Platyloma calomelanos*; its name is

enough to pronounce it beautiful, and certainly no one can help admiring this delicate-looking species.

An evergreen warm greenhouse species.

A native of the Cape of Good Hope.

Received at the Royal Gardens, Kew, from Mr. Henderson, in 1843.

The fronds are glabrous, deltoid, glaucous, bipinnate, the pinnules deltoid coriaceous, cordate at the base, sub-trilobate, with a narrow cartilaginous margin.

Stipes covered with scales near the base, ebeneous, terminal, attached to a creeping short rhizoma.

Length of frond twelve inches; colour bluish green.

Sori continuous round every fertile pinnule. Indusium very narrow.

I am indebted to Messrs. Booth, of Hamburg, for a plant of this species; and to Mr. Henderson, of Wentworth, and to Mr. Norman, of Hull, for fronds.

It is in the Fern Catalogues of Messrs. Parker, of Holloway; Sim, of Foot's Cray; Osborn, of Fulham; Kennedy, of Covent Garden; Veitch, of Chelsea; and Booth, of Hamburg.

The illustration is from a frond forwarded by Mr. Norman, of Hull.



PLATYLOMA GERANIIFOLIA.



Portion of mature Frond, upper side.

PLATYLOMA GERANIIFOLIA.

LOWE.

PLATE XXVII. VOL. III.

<i>Pellaea geraniifolia</i> ,	J. SMITH. FEE.
<i>Pteris palmata</i> ,	OF GARDENS. J. SMITH.
" "	WILLDENOW.
" <i>geranioides</i> ,	SCHOTT, MS.
" <i>geraniifolia</i> ,	RADDI. KUNZE.
" <i>pedata</i> ,	SWARTZ, (<i>not</i> LINNÆUS or SCHKUHR.)
" "	KUNZE.
" <i>pohliana</i> ,	KUNZE.

Platyloma—Broad-edge.

Geraniifolia—Geranium-leaved.

AN interesting dwarf species, which has been looked upon as a *Pteris* by most botanists, but placed in the present family by Mr. J. Smith. It appears to be rather a delicate species to cultivate, yet it is not difficult to raise from spores. Young plants in the seed-pans will bear fertile fronds.

An evergreen stove Fern.

Native of Brazil, India, and the Island of Java.

Introduced into this country in 1816, according to Kunze; and into the Royal Gardens, Kew, in 1838.

VOL. III.

T

Fronds glabrous, triangular, five-parted, the segments drooping, pinnatifid, linear-lanceolate.

Rachis and stipes ebeneous, terminal, adherent to a rhizoma which is somewhat creeping.

Sori reddish brown, oblong or linear, and are continuous; indusium narrow.

Length of frond from six to ten inches, colour light green.

For plants of this Fern I am indebted to Mr. Henderson, of Wentworth; and for fronds to Mr. Norman, of Hull; Miss Carr, of Qualt Rectory, near Bridgnorth, Salop; and to M. Schott, Director of the Imperial Botanic Gardens at Schonbrunn, near Vienna.

It is in the Fern Catalogue of Messrs. Booth, of Hamburg. Probably, in most instances, the species mentioned in English Catalogues as *Pteris pedata* and *Dryopteris pedata*, will be this Fern.

The illustration is from a plant in my own collection.



PLATYLOMA SAGITTATA.



Portion of fertile Frond, under side.

PLATYLOMA SAGITTATA.

MOORE AND HOULSTON.

PLATE XXVIII. VOL. III.

Allosorus sagittatus,
Pteris sagittata,
Pellæa sagittata,
 “ *cordata*,
Pteris cordata,
Platyloma cordata,
 “ “

PRESL. KUNZE. SCHOTT, MS.
 CAVANILLES. SWARTZ. WILLDENOW.
 LINK. FEE.
 J. SMITH.
 PRESL.
 MOORE AND HOULSTON. J. SMITH.
 CAVANILLES.

Platyloma—Broad-edge.

Sagittata—Arrow-shaped.

IN THE SECTION PELLÆA OF AUTHORS.

A PRETTY Fern, approaching nearer to *Platyloma flexuosa* than to any other of our cultivated species. It bears two names in gardens, namely, *P. cordata* and *P. sagittata*. It is not a common species, only to be procured from our larger collections. Erect in its habit.

A somewhat deciduous, warm greenhouse Fern, from Mexico.

Raised from spores at the Royal Gardens, Kew, in the year 1842.

Fronds triangular, bipinnate; pinnules cordate-lanceolate, having the singular property of rolling the margins under, and thus becoming arrow-shaped; stalked, smooth, glaucous.

Sori linear, continuous, broad; indusium narrow.

Rachis and stipes pale brown, lateral, adherent to a brief ereeping rhizoma.

Length of frond from eighteen inches to two feet; colour glaucous green.

My thanks are due to Mr. Sim, of Foot's Cray, for a plant of this species; and to M. Schott, Director of the Imperial Gardens at Schonbrunn, near Vienna; Mr. J. Henderson, of Wentworth; and to Mr. Norman, of Hull, for fronds.

It is in the Fern Catalogues of Messrs. Sim, of Foot's Cray; Rollisson, of Tooting; Veitch, Jun., of Chelsea; A. Henderson, of Pine-apple Place; Parker, of Holloway; Booth, of Hamburg; Kennedy, of Covent Garden; and Stansfield and Son, of the Vale Gardens, Todmorden.



PLATYLOMA BROWNII.



Pinna of fertile Frond, under side.

PLATYLOMA BROWNII.

J. SMITH. FEE. HOOKER. MOORE.

PLATE XXIX. VOL. III.

Allosorus paradoxus,
Adiantum paradoxus,
Pteris latizona,
 “ *paradoxa*,

KUNZE.
 R. BROWN.
 A. CUNNINGHAM, MS.
 DESVAUX.

Platyloma—Broad-edge.

Brownii—Brown's.

THE *Platyloma Brownii* is a stout, handsome-looking, rare Fern, whose fertile and barren fronds contrast greatly with each other. It is well worthy of general cultivation, yet seldom to be met with in our gardens.

An evergreen greenhouse Fern.

A native of New South Wales, about Moreton Bay.

Introduced into England in the year 1821.

The fronds, which are coriaceous, are pinnate, with few (comparatively with *P. falcata*, its nearest ally,) pinnæ, varying in number from four to eight pairs, and in size from an inch and a half to three inches long, and from one half to seven eighths of an inch in width. These are nearly heart-shaped divisions.

The stipes long, brown, and roundish, furnished with small hair scales, especially below.

Sori continuous along the whole margins, forming a very broad band; the indusium, which is of that nature which is called spurious, very narrow, not covering the spore-cases, and consisting of the revolute attenuated margin.

Length of frond from one to two feet; colour above dark green, below paler. Rhizoma creeping subterraneously.

A plant of easy culture with ordinary management.

The fronds are nearly erect.

For a plant of this species I am indebted to Messrs. E. G. Henderson, of the Wellington Nursery, St. John's Wood; and for fronds to Messrs. Rollisson, of Tooting; and Mr. Joseph Henderson, of Wentworth; and for valuable information regarding this Fern to Mr. Moore, the able Curator of the Chelsea Botanic Gardens.

It is in the Catalogues of Messrs. Sim, of Foot's Cray; A. Henderson, of Pine-apple Place; Parkér, of Holloway; E. G. Henderson, of St. John's Wood; Stansfield, of Todmorden; and Rollisson, of Tooting.

The illustrations are from fronds off the plant in my own collection.

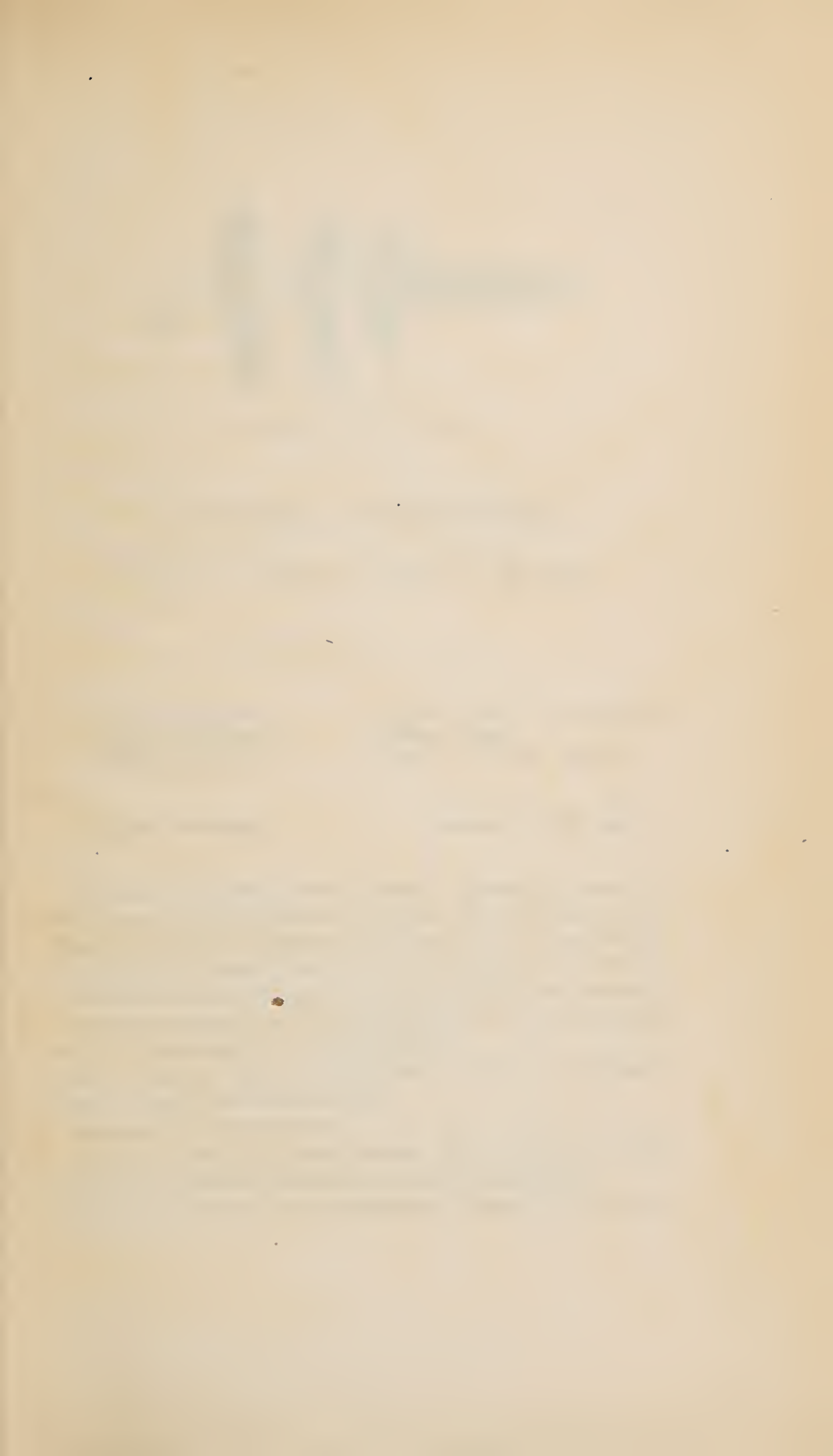


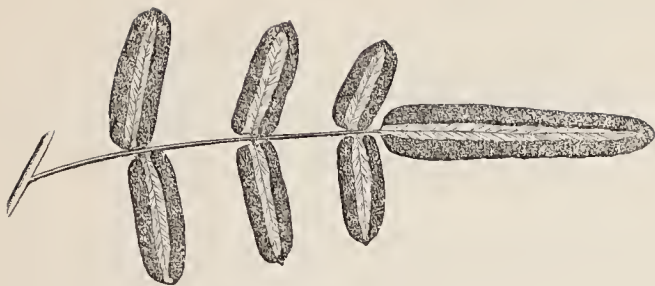
Barren Frond.



PLATYLOMA ATROPURPUREA.

P. FALCATA.





Portion of fertile Frond, under side.

PLATYLOMA ATROPURPUREA.

J. SMITH. LINNÆUS. MOORE AND HOULSTON.

PLATE XXX.—A. VOL. III.

Pellæa atropurpurea,
Allosorus atropurpureus,
Pteris atropurpurea,

J. SMITH. LINK. FEE. LAMARCK.
 KUNZE. PRESL.
 LINNÆUS. HOOKER. SCHKUHR.

Platyloma—Broad-edge.

Atropurpurea—Dark purple.

ANOTHER interesting dwarf species, although it cannot be said to vie with *Platyloma ternifolia*, *P. calomelanos*, or *P. flexuosa*, still all the *Platylomas* are handsome. It is not difficult to cultivate in a light fibrous soil, with abundance of drainage. The soil should not be kept too wet, frequent partial waterings are bad, as the soil is by this means kept too wet, less frequently and a copious supply is more beneficial.

An evergreen frame or greenhouse species, not sufficiently hardy to stand over winter's cold.

A native of North America.

Introduced into the Royal Gardens, Kew, in the year 1770, yet is by no means a common Fern at the present day.

Form of the frond ovate-lanceolate, bipinnate, the pinnules

being glabrous, oblong or bluntly ovate, cordate at the base; terminal pinnule elongate.

Rachis and stipes covered with hairs, terminal, adherent to a somewhat creeping rhizoma.

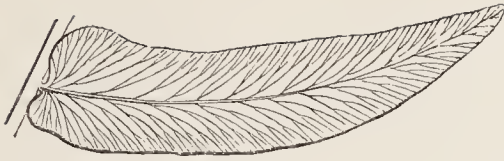
Sori linear, continuous, exceedingly broad. Indusium narrow.

Length of frond usually from six to ten inches; colour a heavy blue green.

My thanks are due to Mr. Stratton, of the Cambridge Botanic Gardens, for a plant of this species; and to Mr. Henderson, of Wentworth, and to Mr. Norman, of Hull, for fronds.

It is in the Fern Catalogues of Messrs. Veitch, of Exeter; Veitch, Jun., of Chelsea; A. Henderson, of Pine-apple Place; Sim, of Foot's Cray; Booth, of Hamburg; and Kennedy, of Covent Garden.

The illustration is from a plant in my own collection.



Pinna of mature Frond, upper side.

PLATYLOMA FALCATA.

J. SMITH. R. BROWN. MOORE AND HOULSTON.

PLATE XXX.—B. VOL. III.

Allosorus falcatus,

Pteris falcata,

Pellæa falcata,

KUNZE. SCHOTT. M.S.

BROWN. LINK. HOOKER. PRESL.

FEE.

Platyloma—Broad-edge.

Falcata—Sickle-shaped.

ANOTHER handsome *Platyloma*, easily cultivated if the thrips can be kept from it; they appear very fond of this Fern, and soon make great ravages with its fronds, weakening the plant to a very great extent.

An evergreen greenhouse species. Native of New Holland.

Introduced into the Royal Gardens, Kew, in the year 1823, by Mr. Allan Cunningham.

The form of the frond is lanceolate, pinnate; the pinnae being glabrous, linear-lanceolate, oblong, bluntly-acuminate, falcate, cordate at the base, coriaceous. Rachis and stipes squamiferous. Lateral, adherent to a creeping rhizoma.

Sori linear, continuous, extending from the base to nearly the apex of the frond, very broad. Indusium very narrow.

Length of frond from one to two feet, rather erect.

Colour of the frond above dull green, beneath paler.

For plants of this species I am indebted to Mr. Pass, gardener to T. Brocklehurst, Esq., of The Fence, near Macclesfield; Messrs. Veitch, of Exeter; Mr. Norman, of Hull; Mr. Ingram, of the Royal Gardens, Windsor; Messrs. E. G. Henderson, of St. John's Wood; Mr. Masters, of Canterbury; and for fronds to M. Schott, of the Imperial Gardens, Schonbrünn, near Vienna; Mr. Henderson, of Wentworth; Messrs. Booth, of Hamburg; and Mr. Norman, of Hull.

It is in the Catalogues of all the principal Nurserymen.

PLATYLOMA FALCATA, VARIETY CAUDATA.

THIS Fern has a character and habit midway between *P. falcata* and *P. rotundifolia*. It was sent to me under the name of *P. cordata*, as the pinnules have a pointed apex rising out of a rounded end; perhaps this may have been misspelt for *caudata*. It will therefore be retained as *P. falcata*, var. *caudata*. The *P. cordata* of gardens is figured on Plate XXVIII. The venation is bolder than in the normal form of *P. falcata*. It is doubtful whether it will ever prove to be more than a variety.

The illustration is from a plant in my own collection.



Variety Caudata.



Barren Frond—Normal form.



PLATYLOMA INTRAMARGINALIS.

XXXI—VOL. 3.



Portion of mature Frond, upper side.

PLATYLOMA INTRAMARGINALIS.

PLATE XXXI. VOL. III.

<i>Pellæa intramarginalis</i> ,	J. SMITH.
<i>Cassebeera inframarginalis</i> ,	MOORE AND HOULSTON.
“ “	J. SMITH.
<i>Pteris inframarginalis</i> ,	KAULFUSS.
“ <i>intramarginalis</i> ,	LINK. KAULFUSS. SCHOTT, MS.
“ “	KUNZE. SCHLECTENDAL. FEE.
<i>Allosorus intramarginalis</i> ,	KUNZE. PRESL.

Platyloma—Broad-edge.

Intramarginalis—Within-margined.

IN THE SECTION PELLÆA OF AUTHORS.

A DELICATE and uncommon Fern, requiring care, yet at the same time one deserving the necessary attention.

An evergreen greenhouse Fern.

An inhabitant of Mexico and Guatemala.

Received at the Royal Gardens, Kew, in 1841, from the Royal Gardens of Berlin.

The fronds are ovate-lanceolate in form, glabrous, bipinnatifid

and even tripinnatifid below, the segments being linear-acuminate with a serrate margin.

Rachis and stipes dark brown in colour, slender, terminal, adherent to a short creeping rhizoma.

Sori linear, continuous, intramarginal, consisting of a single row of spore-cases; the indusium plane, and also linear and continuous.

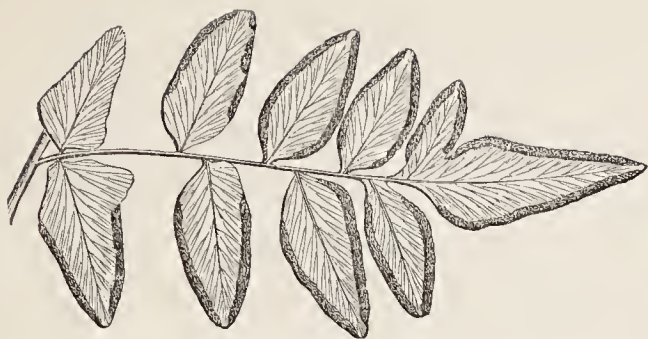
To Mr. J. Henderson, of Wentworth, I am indebted for a plant and fronds of this species; and to M. Schott, of the Imperial Botanic Gardens of Schonbrunn, near Vienna, for other fronds.

It is in the Fern Catalogues of Messrs. E. G. Henderson, of St. John's Wood; Parker, of Holloway; Kennedy, of Covent Garden; Sim, of Foot's Cray; Veitch, Jun., of Chelsea; and Booth, of Hamburg.

The illustration is from a plant in my own collection.



PLATYLOMA HASTATA.



Portion of fertile Frond, under side.

PLATYLOMA HASTATA.

LOWE.

PLATE XXXII. VOL. III.

Pellæa hastata,
Cheilanthes hastata,
Cassebeera hastata,
Pteris hastata,
 “ *viridis*,
Allosorus hastatus,
Adiantum hastatum,

J. SMITH. LINK. FEE.
 KUNZE.
 J. SMITH. MOORE AND HOULSTON.
 LINNÆUS. SWARTZ.
 FORSK.
 PRESL.
 LINNÆUS.

Platyloma—Broad-edge.

Hastata—Halbert-leaved.

IN THE SECTION PELLÆA OF AUTHORS.

THE *Platyloma hastata* is a pretty and not uncommon Fern, known best in the English gardens as *Pteris hastata*, and being easily propagated from spores.

An evergreen greenhouse species.

A native of the Cape of Good Hope.

Introduced into England before the year 1822.

The fronds, which are glabrous, are bipinnate; the pinnæ being cordate, hastate; margin crenate.

Rachis and stipes terminal, dark brown, adherent to a short creeping rhizoma.

Sori linear, continuous; indusium plane.

Length of frond from twelve to eighteen inches; colour yellowish green.

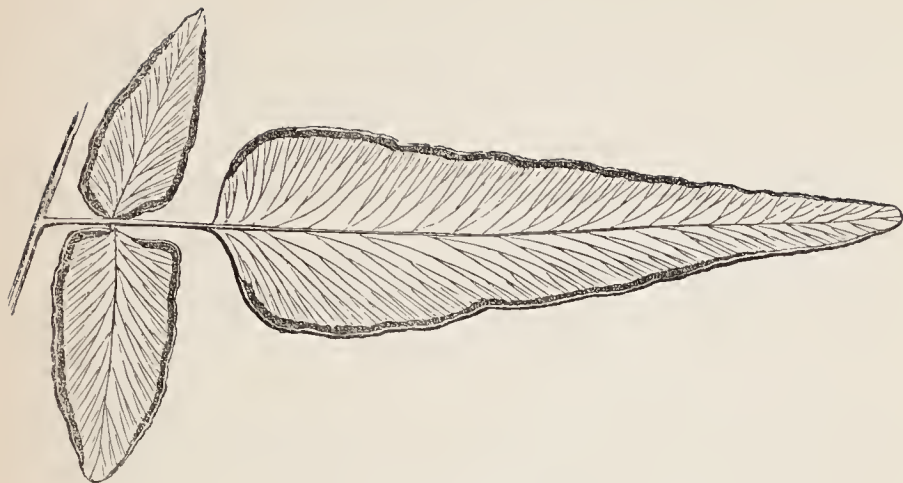
My thanks are due to Mr. Henderson, of Wentworth, for a plant of this species; and to Mr. Norman, of Hull, and Messrs. Booth, of Hamburg, for fronds.

It is in the Fern Catalogues of Messrs. Booth, of Hamburg; E. G. Henderson, of St. John's Wood; Bass and Brown, of Sudbury; Osborn, of Fulham; Veitch, of Exeter; Sim, of Foot's Cray; Veitch, Jun., of Chelsea; Masters, of Canterbury; Rollisson, of Tooting; Parker, of Holloway; Cooling, of Derby; and Stansfield and Son, of Todmorden.

The illustration is from a plant in my own collection.



PLATYLOMA ADIANTOIDES.



Portion of fertile Frond, under side.

PLATYLOMA ADIANTOIDES.

LOWE.

PLATE XXXIII. VOL. III.

Pellæa adiantoides,
Allosorus adiantoides,
Pteris adiantoides,
 “ *latifolia*,
 “ *macrophylla*,

J. SMITH.
 PRESL.
 BORY.
 OF GARDENS.
 KUNZE.

Platyloma—Broad-edge.

Adiantoides—Maiden-hair-like.

Platyloma adiantoides is a handsome, vigorous-growing Fern, resembling a large *P. hastata*. It is not commonly to be met with, excepting in our larger British collections.

A warm greenhouse evergreen species.

Native of the West Indies.

The form of the frond is broadly-ovate, bipinnate. The lowest pinnæ having from seven to eleven pinnules, the rest gradually decreasing upwards to a simply pinnated apex.

The barren frond has ovate pinnules, which are obtusely toothed, whilst those of the fertile frond are more entire and acuminate. The pinnules next to the rachis occasionally auricled at the base, the terminal generally sub-hastate.

Sori linear, continuous.

Length of frond from eighteen inches to two feet; colour deep green.

Pinnules subpetiolate. Stipes black and glabrous.

The *Platyloma adiantoides* is better known as the *Pteris adiantoides* and *P. latifolia* of gardens.

It differs from *P. hastata*, in being larger; broadly ovate in form instead of narrow-lanceolate, as in *P. hastata*. It also differs in the form of the pinnules, being ovate or obtuse lanceolate, rarely hastate or crenulate.

My thanks are due to Mr. Joseph Henderson, of Wentworth, for a plant and fronds of this species, and for information regarding this Fern.

It is in the Catalogues of Messrs. Stansfield, of Todmorden; E. G. Henderson, of St. John's Wood; and Sim, of Foot's Cray.

The illustration is from a frond sent by Mr. Henderson, of Wentworth.



Portion of barren Frond.

GENUS IV.

ALLOSORUS. BERNHARDI. J. SMITH.

A SMALL genus and yet an interesting one, having barren and fertile fronds dissimilar. The fertile fronds being contracted and having revolute margins, forming, as it were, a universal indusium.

Veins free and forked; sporangia terminal.

Sori laterally confluent, round or oval; the sori eventually forming an intramarginal, broad, compound, transverse sorus.

Fronds bitripinnate, or decompound.

Rhizoma creeping and somewhat cæspitose.

Fertile fronds contracted, segments oval, elliptical, and revolute.

Sterile frond having the pinnules dentate, crenate, or laciniate.

Mr. Moore places the *Allosorus* amongst the *Polypodiæ*, and certainly it seems more natural than with *Pteris*, although it is, perhaps, a genus whose characters are midway between them, and consequently difficult to determine to which to attach it.

Mr. Smith remarks in his "Genera of Ferns," that having the margin of the fronds membranaceous and indusiiform, the sori being confluent, and forming, as it were, a transverse marginal sorus, it, on this account, approaches near to the genus *Pteris*; but as the indusiiform margin is formed by the changed state of the fertile frond, and does not rise from a sporangiferous receptacle, as in the true *Pteridiæ*, it, on this account, approaches *Polypodium*, from which its great difference is the contracted character of the fertile fronds.

Mr. Smith enumerates six species:—

1.—*Crispus*, Bernhardt.

2.—*Acrostichoides*, Sprengel.

3.—*Brunonianus*, (*Cryptogramma*, Wallich.)

4.—*Gracilis*, J. Smith, (*Cheilanthes*, Kaulfuss.)

5.—*Ciliatus*, Presl.

6.—*Hirsutus*, Presl.

None seem to be cultivated in this country except the solitary indigenous species, the *Allosorus crispus*.



ALLOSORUS CRISPUS.



Portion of fertile Frond, under side.

ALLOSORUS CRISPUS.

BERNHARDI. SCHRADER. BABINGTON. DEAKIN.
 NEWMAN. MOORE. SOWERBY. SPRENGEL. PRESL. LINK.
 KUNZE. KAULFUSS. MOORE AND HOULSTON.

PLATE XXXIV. VOL. III.

<i>Allosorus Stelleri</i> ,	RUPPRECHT.
<i>Osmunda crispa</i> ,	LINNÆUS. BOLTON.
“ <i>rupestris</i> ,	SALISBURY.
<i>Pteris crispa</i> ,	LINNÆUS. SMITH. SCHKUHR.
“ “	WILLDENOW.
“ <i>Stelleri</i> ,	GMELIN.
“ <i>tenuifolia</i> ,	LAMARCK.
<i>Acrostichum crispum</i> ,	VILLARS.
<i>Onoclea crispa</i> ,	HOFFMANN.
<i>Cryptogramma crispa</i> ,	R. BROWN. HOOKER AND ARNOTT.
“ “	MACKAY. J. SMITH.
<i>Phorolobus crispus</i> ,	DESLAUX. FEE.
<i>Stegania onocleoides</i> ,	GRAY

Allosorus—Diverse heaps.

Crispus—Curled.

THE “Mountain Parsley Fern,” or “Rock Brakes,” as this interesting British species is popularly called, when well grown,

is very handsome, the barren and fertile fronds contrasting greatly with each other.

A hardy, deciduous, indigenous species.

A local yet abundant Fern on the Scotch mountains; and hills in the North of England. In Ireland it is rare, and only occurs in Antrim, Down, and Louth. In North Wales, according to Mr. Moore, it is not found below an elevation of four hundred and fifty feet, and in Scotland it ascends to three thousand four hundred and fifty feet. In Lancashire, it descends to nearly the sea level.

It is widely spread through Europe, occurring in Lapland, Norway, Sweden, Denmark, Germany, Hungary, Switzerland, France, Spain, Italy, Sitka, England, Scotland, Ireland, and Wales.

The *Allosorus crispus* does not succeed well unless it is allowed abundance of drainage, as an excess of moisture is almost certain destruction.

Sterile fronds leafy, generally about equal in length with the stipes smooth, bipinnate, and sometimes tripinnate; pinnae triangular-ovate in form, alternate, smaller as the apex of the frond is approached; pinnules also alternate, ovate in form, pinnate or pinnatifid, the lobes cut into linear acute teeth.

Fertile fronds contracted, mostly only half as long as the stipes, tripinnate, and occasionally quadripinnate in the lower portion of the lowest pinnae; pinnae alternate, ovate in form, pinnules alternate, pinnate above, pinnato-pinnatifid in the lowest pinnae. The ultimate divisions are linear-oblong, obtuse, and petiolate. Venation of the barren frond extending in a thin vein along each pinnule, and branching off into each lobe; it is simple except where the segment is bifid, then forked. In the fertile fronds the vein runs in a sinuous course to the apex of each ultimate division; usually simple, occasionally forked, extending almost to the margin, and bearing a sorus near to the extremity.

The fructification generally occupying the whole under surface of the frond; sori small and rounded, approximate, and ultimately confluent, thus forming a continuous line.

The margin of the pinnulets, though unaltered in texture, are incurved over the sori. There is no indusium; spore-cases stalked; spores smooth, roundish oblong.

Fronds annual, appearing in May, and perishing early in the autumn.

Length of frond from four to twelve inches; colour lively green. Barren and fertile fronds dissimilar.

Stipes mostly longer than the frond, smooth, slender, and vivid green in colour. Rachis smooth; caudex small, short, tufted, and scaly. Fibres branched, wiry, and dark brown in colour.

It delights to grow in a shady situation, free from stagnant moisture; the latter in winter, when the fronds have disappeared, is sure to kill it.

It does not seem subject to variety like many of our British species.

For plants of *A. crispus* I am indebted to Miss Barker, Trent Lock, Beeston; Mr. Wraight, of Newlands; Mr. Joseph Sidebotham, of Manchester; Mr. Booker, of Matlock; to Mr. Robert Clarke, gardener at Flass House, Crosby Ravensworth; and to Captain A. S. H. Lowe, for plants gathered wild in Westmoreland. For fronds I am indebted to Mr. Gray, of St. Thomas', Exeter; and to Mr. Norman, of Hull.

The illustration is from a frond forwarded by Mr. Gray.

GENUS V.

DORYOPTERIS. J. SMITH.

A CHARMING little genus, in which are included, according to Fee in his "Genres de la Famille des Polypodiacées," the following:—

- 1.—*Wallichii*, J. Smith.
- 2.—*Sagittæfolia*, J. Smith, (*Pteris* of Raddi.)
- 3.—*Hastata*, J. Smith, (*Pteris* of Raddi.)
- 4.—*Pedata*, Fee, (*Pteris* of Linnæus, *Litobrochia* of Presl, *Pteris palmata* of Willdenow and Plumier, and *Pteris pedata* of Willdenow and Plumier.)
- 5.—*Trifoliata*, Fee, (*Pteris* of Bory.)
- 6.—*Raddiana*, Fee, (*Pteris pedata*, var., Raddi.)
- 7.—*Præalta*, Fee.
- 8.—*Articulata*, Fee, (*Pteris* of Kaulfuss.)

Of these only four appear to be cultivated in Great Britain, and each is as handsome as it is possible for a Fern to be; in short, they are little gems.

Mr. Smith, in his "Genera of Ferns," gives the following:—

- 1.—*Sagittifolia*, Raddi.
- 2.—*Hastata*, Raddi.
- 3.—*Palmata*, Willdenow.
- 4.—*Wallichii*, J. Smith.
- 5.—*Varians*, Raddi.
- 6.—*Collina*, Raddi.
- 7.—*Cordifolia*, J. Smith.

Of these Nos. 1, 3, and 6 were in cultivation in Great Britain, however in Mr. Smith's new Catalogue of the Ferns in the Royal Gardens, Kew, he has now excluded *D. collina*.

A Fern which I have lately received from the continent, under the name of *Ancmia fraxinifolia*, will, I have very little hesitation in saying, turn out to be the *Doryopteris collina*; it differs considerably from *D. pedata*; in the former the fronds are *palmate*, whilst in the latter they are *digitately palmate*.

The fronds are either simple, cordate, lobed, or digitately palmate, glabrous, and coriaceous. Stipes and costa ebeneous.

Length of frond from eight to twelve inches.

Venation regular, internal, reticulated, forming oblique-elongated areoles.

Sori marginal, linear, and continuous.

Indusium narrow.

The genus *Doryopteris* has some similarity to both *Platyloma* and *Cassebeera*, yet those of *Doryopteris* are easily recognised by their reticulated veins. The only difference between *Doryopteris* and *Litobrochia* appears to be in their habit, and that is so distinct as to render it desirable to separate them from *Pteris*.

There is no British representative of this genus.



DORYOPTERIS PEDATA.



Portion of mature Frond, upper side.

DORYOPTERIS PEDATA.

FEE. J. SMITH.

PLATE XXXV. VOL. III.

<i>Pteris pedata</i> ,	LINNÆUS. WILLDENOW. SCHKUHR.
“ “	RADDI, PROBABLY OF PLUMIER, KAULFUSS, AND LANGSDORFF.
“ <i>digitato-partita</i> ,	WILLDENOW.
“ <i>chenopora</i> ,	WILLDENOW.
<i>Litobrochia pedata</i> ,	PRESL.

Doryopteris—Spear-leaved Fern.

Pedata—Pedate.

A DWARF handsome Fern, less than *Doryopteris palmata*, and yet very much resembling that species, although not so much divided on the frond.

An evergreen stove Fern.

Native of the West Indies and Brazil.

The fronds, when mature, measuring about five inches in expansion either way, ternate, parted to the base, the three branches springing from the top of the stipes; the lateral ones two-parted nearly to the base; both segments deorsely lobed, the upper also slightly lobed on the anterior side, the lobes variable in size and number, the intermediate branch being cuneate at the

base. Equally pinnatifid, with ascendant lobes, of which the lower is largest, the rest diminishing upwards. All the branches terminate in a longish entire apex.

Stipes flat and slightly grooved in front, ebeneous, scaly at the base. Length of stipes half that of the frond.

Fronds forming a spreading tuft from a short almost erect or subdecumbent rhizoma.

Length of frond from four to six inches; colour bright green.

Sori continuous.

My thanks are due to Mr. Stansfield, of Todmorden, for a plant; and to Mr. Moore, of the Chelsea Botanic Gardens, and to Mr. Henderson, of Wentworth, for fronds.

There is so much confusion regarding the present species, the *D. palmata*, and *D. collina* in our Nurserymen's Catalogues, that it would be unsafe to give a list of those supplying the plant.

It is distinguished from *D. palmata* by its much smaller size and more slender proportions, as well as by its decidedly three-parted fronds, which are never proliferous.

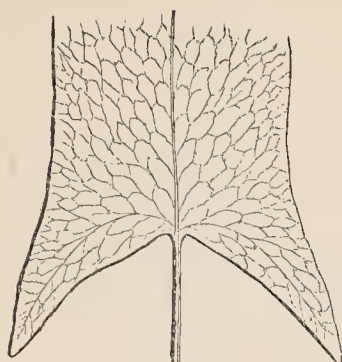
It is distinguished from *D. collina* by its fronds being thinner and three-parted. It resembles *D. collina* in the smaller-sized fronds and non-proliferous character.

The illustration is from a frond kindly forwarded by Mr. Moore, of the Botanic Gardens, Chelsea.



HEMIPPTERUS SAGITTIFOLIA





Portion of mature Frond, upper side.

DORYOPTERIS SAGITTÆFOLIA.

J. SMITH.

PLATE XXXVI. VOL. III.

<i>Doryopteris sagittifolia</i> ,	MOORE AND HOULSTON. FEE.
“ “	RADDI. KUNZE.
“ <i>hastifolia</i> , var.	RADDI.
<i>Litobrochia sagittæfolia</i> ,	PRESL.
<i>Pteris sagittæfolia</i> ,	RADDI.

Doryopteris—Spear-leaved Fern. *Sagittæfolia*—Arrow-head leaved.

AN exquisite dwarf species, deserving to be in every collection. Easily cultivated, occupying but little room, and very distinct, this pretty arrow-headed Fern must be a favourite with every one.

An evergreen stove species.

Native of Brazil.

Introduced into the Royal Gardens, Kew, by Mr. George Gardner, in the year 1841.

The fronds, which are simple, are sagittate, acute, rather

erect, coriaceous, terminal, adherent to a somewhat creeping rhizoma.

Nearly all the fronds are fertile. Sori linear, continuous; indusium narrow.

Length of frond from six to twelve inches; bright green above, pale green beneath. Stem ebeneous.

For plants of this species I am indebted to Mr. Sim, of Foot's Cray, and to Mr. Parker, of Holloway; and for fronds to Mr. Jeans, of Grantham; Mr. Clark, the Curator of the Glasgow Botanic Gardens; Mr. Henderson, of Wentworth; and to Mr. Norman, of Hull.

It is in the Catalogues of Messrs. Sim, of Foot's Cray; Parker, of Holloway; Rollisson, of Tooting; Stansfield and Son, of Todmorden; and Kennedy, of Covent Garden.

The illustration is from a plant in my own collection.



ADIANTUM PALMATA.



Portion of mature Frond, upper side.

DORYOPTERIS PALMATA.

J. SMITH. KLOTZSCH. MOORE AND HOULSTON.

PLATE XXXVII. VOL. III.

Doryopteris pedata,
Pteris palmata,
 " *anisoloba*,
 " *polytoma*,

J. SMITH?
 WILLDENOW. KUNZE.
 KUNZE.
 KUNZE.

Doryopteris—Spear-leaved Fern.

Palmata—Palmate.

THE *Doryopteris palmata* is a most beautiful dwarf Fern, not commonly met with in collections. It requires care in its management, as it is a delicate species. Warmth and shade are two essentials, and the plant must not have too much pot-room.

An evergreen stove Fern.
 From Brazil and Venezuela.

Received into the Royal Gardens, Kew, in 1840, from the Messrs. Loddiges.

The fronds, which are glabrous, are digitately-palmate, coriaceous, drooping, segments linear-acuminate, pinnatifid. Stipes near the base squamiferous, terminal, adherent to a short creeping rhizoma.

Sori linear, continuous; indusium plane.

Length of frond twelve inches; colour brilliant green.

For plants of this species I am indebted to Messrs. Veitch, of Exeter; Mr. Masters, of Canterbury; Mr. Ingram, of the Royal Gardens, Windsor; and Messrs. E. G. Henderson, of St. John's Wood; and for fronds to M. Schott, of the Imperial Gardens, Vienna, and to Mr. Moore, of the Chelsea Botanic Gardens.

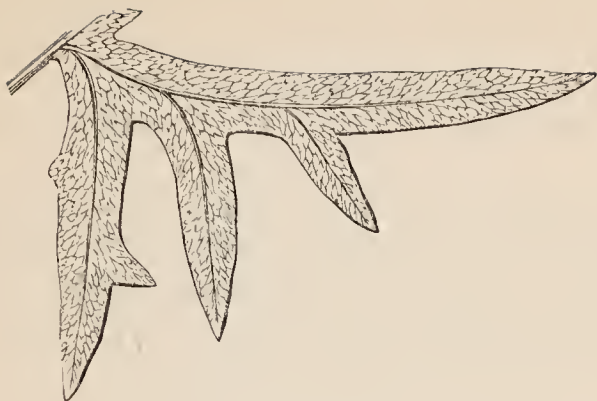
It is in the Catalogues of Messrs. E. G. Henderson, of St. John's Wood; Bass and Brown, of Sudbury; Osborn, of Fulham; Veitch, of Exeter; Sim, of Foot's Cray; Veitch, Jun., of Chelsea; Masters, of Canterbury; Rollisson, of Tooting; Parker, of Holloway; Stansfield, of Todmorden; and Kennedy, of Covent Garden.

The illustration is from a plant in my own collection.



DORYOPTERIS COLLINA.

XXXVIII[-VOL. 3.



Portion of mature Frond, upper side.

DORYOPTERIS COLLINA.

J. SMITH. MOORE AND HOULSTON.

PLATE XXXVIII. VOL. III.

Doryopteris varians,
Pteris collina,
 “ *pedatoides*,
 “ *variens*,

J. SMITH.
 RADDI. SPRENGEL. KUNZE.
 DESVAUX.
 RADDI.

Doryopteris—Spear-leaved Fern.

Collina—A hill.

A SOMEWHAT similar-looking, beautiful species, but dwarfer in habit, and with smaller fronds than *D. palmata*; not commonly to be met with in gardens. There seems to be some confusion regarding these Ferns, as they are to be found under the names of *D. collina*, *D. palmata*, and *D. pedata*, as if only one species. Worthy of general cultivation.

An evergreen stove Fern.

Native of Brazil.

The fronds, which are glabrous and coriaceous, are palmate in form. The sterile fronds are three or five lobed, with roundish obtuse blunt segments. The fertile fronds are five-

parted, having linear-lanceolate pinnatifid segments; the inferior elongate.

Sori linear, continuous; indusium plane.

Length of frond from six to ten inches; colour bright green.

Fronds terminal, adherent to a somewhat creeping rhizoma.

For a plant of this species I am indebted to Messrs. Stansfield, of Todmorden, and for fronds to Mr. Thomas Moore, Curator of the Chelsea Botanic Gardens, to whom I am also much indebted for valuable information regarding the *Doryopteris* family.

A list of Nurserymen supplying this species is omitted, as it is uncertain which Fern is meant.

The illustration is from a frond forwarded by Mr. Moore.

GENUS VI.

PTERIS. LINNÆUS.

THE family of *Pteris* has been very much cut up into groups and distinct families, some of which are very near neighbours to *Pteris*. Of these Mr. Smith, in his Catalogue of the Ferns in the Royal Gardens, Kew, has the following:—

- 1.—*Cryptogramma*, a very un-*Pteris* looking solitary Fern.
- 2.—*Pellæa*, eight species.
- 3.—*Platyloma*, three species.
- 4.—*Doryopteris*, two species.
- 5.—*Pteris*, nineteen species.
- 6.—*Litobrochia*, nine species.
- 7.—*Lonchitis*, one species.

Kunze, in his “Index Filicum,” has the following:—

- 1.—*Allosorus*, fifteen species, including Smith’s genera, *Cryptogramma*, *Pellæa*, and *Platyloma*.
- 2.—*Lonchitis*, two species.
- 3.—*Pteris*, fifty-two species, including *Doryopteris* and *Litobrochia*.

Presl, in his “Tantamen Pteridographiæ,” contains:—

- 1.—*Pteris*, an extensive genus.
- 2.—*Monogonia*, one species.
- 3.—*Campteria*, six species.
- 4.—*Litobrochia*, an extensive genus.
- 5.—*Amphiblestra*, two species.
- 6.—*Allosorus*, an extensive genus.
- 7.—*Lonchitis*, three species.

Moore, in his "Genera and Species of Cultivated Ferns":—

- 1.—*Cassebeera*, five species.
- 2.—*Platyloma*, eight species.
- 3.—*Doryopteris*, three species.
- 4.—*Litobrochia*, five species.
- 5.—*Lonchitis*, one species.
- 6.—*Campteria*, one species.
- 7.—*Pteris*, fourteen species.
- 8.—*Onychium*, one species.

Fee, in his "Genera Filicum":—

- 1.—*Pteris*, a large family.
- 2.—*Pellæa*, an extensive family.
- 3.—*Phorolobus*, three species, including *Cryptogramma*.
- 4.—*Onychium*, nine species.
- 5.—*Doryopteris*, seven species.
- 6.—*Litobrochia*, a large family.
- 7.—*Heterophlebium*, one species.
- 8.—*Amphiblestra*, one species.
- 9.—*Lonchitis*, nine species.

In the present work *Platyloma* has been separated from *Pteris*, but the division *Pellæa* has been retained as a section of *Platyloma*, rather than devoting a genus to it. *Doryopteris* and *Onychium* are also treated each as a distinct genus; whilst *Litobrochia*, *Lonchitis*, and *Campteria*, are placed as sections of *Pteris*.

There is a solitary representative of this extensive family in Great Britain, viz.—*Pteris aquilina*, and, strange to say, this species has a very great geographic range, although bearing a different name in several countries. Mr. Moore mentions the following as species not to be distinguished from our *Pteris aquilina*:—

- P. lanuginosa*, Bory. Ceylon, Mauritius, and Abyssinia.
- P. decompota*, Presl. Sandwich Islands.
- P. caudata*, Linnæus. North America and Jamaica.
- P. recurvata*, Wallich. Nepal.
- P. arachnoidea*, Kaulfuss. Rio de Janeiro, Brazil, Trinidad.
- P. esculenta*, Forster. New Holland.

The name *Pteris* is derived from *Pteron*—a wing, in reference to the form of the branching of the fronds of this genus. Mr. Moore remarks that originally the family of *Pteris* embraced nearly two hundred species, but from subdivisions and by the recognition of the same species under two or more names the number has been greatly reduced.

Mostly the species are tall coarse-growing Ferns, very easily cultivated; the length of fronds varying from one to ten feet. They are pinnate, bipinnatifid, or decomposed, glabrous or pilose. Veins forked, the venules being direct, and having the apices connected together by a sporangiferous receptacle.

Sori linear, continuous, or interrupted, generally only occupying the sides of the segments.

Indusium plane, linear, with its base often sporangiferous.

In the section *Litobrochia*, the veinlets instead of being direct, are reticulated. They are mostly large branching Ferns, of a flaccid texture.

In the section *Lonchitis*, the veinlets are also reticulated as in *Litobrochia*, yet they differ in the position of the sori; instead of being linear, and occupying more or less of the sides of the segments, it is situated in the sinus of the segments, and is more or less the form of a segment of a circle.

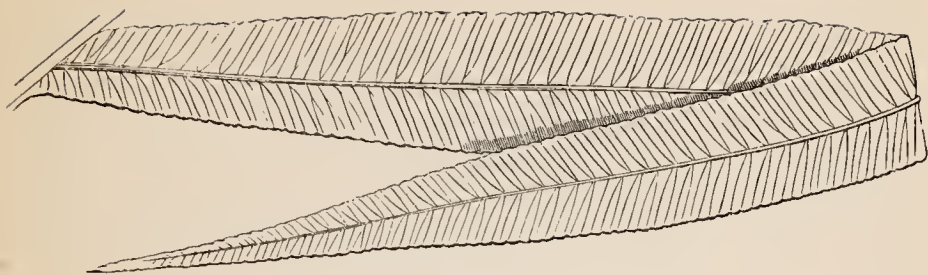
In the section *Campteria* the difference is in the venation, taking a midway character between the true *Pteris* and *Litobrochia*. The veinlets are direct except a single row of costal venules, which anastomose.

Thus in the above the transition from *Pteris* through *Campteria* and *Lonchitis* to *Litobrochia*, is so gradual that the example of Kunze has been followed, in retaining them as sections, in preference to separating them entirely from *Pteris*.



PTERIS UMBROSA.

XXXIX-VOL 6



Pinna of barren Frond.

PTERIS UMBROSA.

R. BROWN. MOORE AND HOULSTON.

SIEBER. FEE. J. SMITH. LINK. AGARDH. KUNZE.

PRESL, (*not of* WALLICH.)

PLATE XXXIX. VOL. III.

Pteris—Brake.

Umbrosa—Shady.

FEW Ferns are able to vie with the *Pteris umbrosa* in its elegance of growth. It is a tall, erect-growing, large species, with weeping pinnae. With abundance of pot-room it forms itself into a handsome specimen.

An evergreen greenhouse Fern.

Native of New Holland, New South Wales, and Australia.

Introduced into the Royal Gardens, Kew, in the year 1824, by Mr. A. Cunningham.

Fronds glabrous, bipinnate below, pinnate above.

In the sterile frond the segments are linear-acuminate, having a serrated margin, and being decurrent at the inferior base. In the fertile frond the segments are linear, narrow, serrated at the apex, and decurrent at the inferior base; often ten inches long. The barren pinnae only half the width of the fertile pinnae.

Fronds lateral or terminal, adherent to a brief creeping rhizoma.

Sori continuous, extending to within an inch of the apex of the segments, and along the decurrent base; when young green, afterwards reddish brown, and reflected over the edge.

Length of frond from two to three feet; colour splendid bright green. In my plants the barren fronds are two feet long, having a stipes one foot three inches in length; the fertile fronds three feet three inches, having a stipes two feet in length.

Stipes on the upper side flat and fluted, lower side circular, colour of under side brownish, upper side mostly green; darker and scaly near the base.

My thanks are due to Mr. Henderson, of Wentworth, for a plant of this species; and to Mr. Norman, of Hull, for fronds.

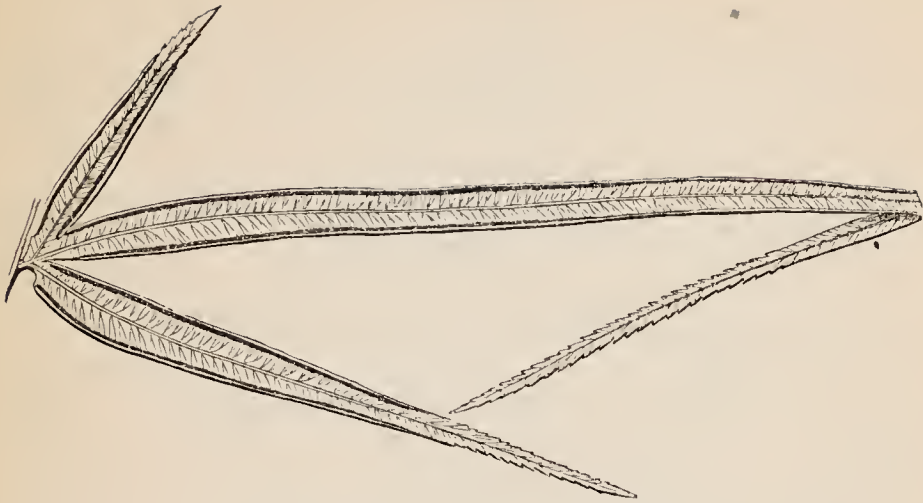
It may be procured from Messrs. Sim, of Foot's Cray; Parker, of Holloway; Rollisson, of Tooting; A. Henderson, of Pine-apple Place; Veitch, Jun., of Chelsea; Booth, of Hamburg; Kennedy, of Covent Garden; and Stansfield and Son, of Todmorden.

In very large species, it has been found impossible to figure a whole frond without reducing it so materially in size that it is scarcely to be recognised; it has therefore been deemed more advisable in these instances to figure portions only of the fronds.

The illustration is a portion of a frond from a plant in my own collection.



PTERIS SERRULATA.



Portion of mature Frond, under side.

PTERIS SERRULATA.

LINNÆUS. MOORE AND HOULSTON. WILLDENOW.
 FEE. SCHKUHR. PLUKENET. J. SMITH. LINK. AGARDH.
 KUNZE. PRESL. SCHOTT, MS.

PLATE XL. VOL. III.

Pteris multifida,

POIRET.

Pteris—Brake.

Serrulata—Saw-edged.

Pteris serrulata may be said to be the most common exotic Fern known in England. It requires no care or trouble in its management, and young plants from spores spring up in all the Fern-pots in the houses where it is grown, so as to constitute itself a troublesome, yet pretty exotic weed. Even in collections of plants where Ferns are not grown, the *P. serrulata* may be found thrusting itself into the notice of every one. A very singular looking species, and well worthy of cultivation.

An evergreen stove Fern.

A native of the East Indies, Japan, and China.

Fronds slender, glabrous, pinnate; the pinnæ being linear, rather pendulous, and would be more so were it not that the fronds hold up one another. The lower pinnæ bipartite or bipinnatifid and petiolulate; the upper ones adnate. Decurrent at their inferior base. The margin of the sterile fronds serrate; the fertile fronds have narrow linear segments. Fronds lateral or terminal, attached to a short creeping rhizoma. Nearly all the fronds fertile.

Length of frond from twelve to eighteen inches; colour light green.

I am indebted to M. Schott, Director of the Imperial Gardens, Vienna, for fronds of this species.

There are several varieties of this species, two of which are here noticed.

Var. *A.* is more pendulous in habit, taking a character midway between *P. serrulata* and *P. umbrosa*.

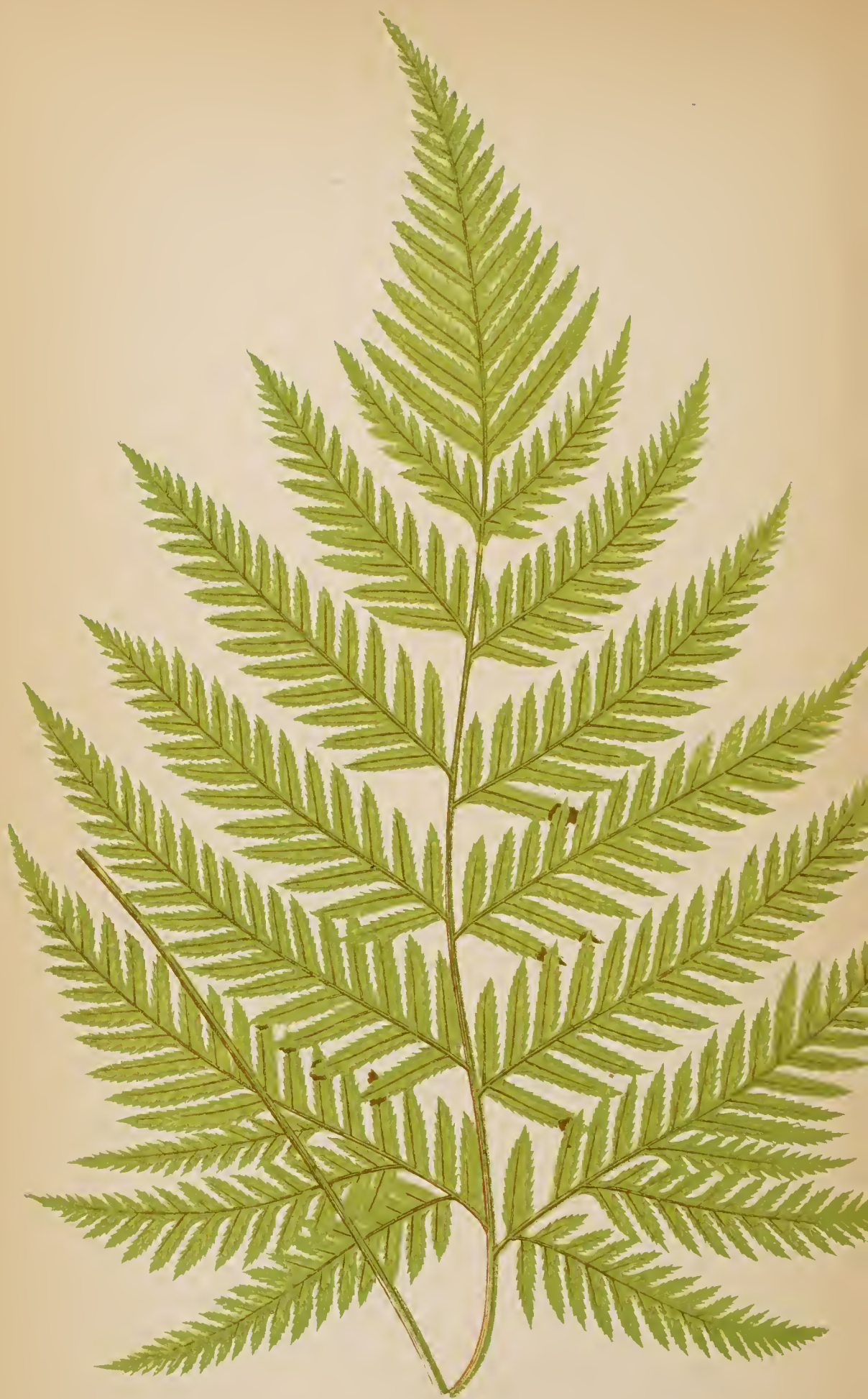
Var. *β.* is much more dwarf, not so many-branched, only the two lowest pinnæ being branched. The plant was received from Mr. James, of Vauvert, in Guernsey, under the name of *P. falcata*.

There is a variety of this species which only grows three inches high, and having a peculiar rugose habit. It was raised (from spores brought from the islands of the Indian Sea,) at Wentworth, by Mr. J. Henderson. It is known under the name of *P. serrulata, minor*.

Introduced into England in the year 1770.

Included in the Catalogues of Messrs. E. G. Henderson, of St. John's Wood; Bass and Brown, of Sudbury; Kennedy, of Covent Garden; Veitch, of Exeter; Veitch, Jun., of Chelsea; Sim, of Foot's Cray; Cooling, of Derby; A. Henderson, of Pine-apple Place; Masters, of Canterbury; Rollisson, of Tooting; Parker, of Holloway; and Stansfield and Son, of Todmorden.

The illustration is from a plant in my own collection.



ADIANTHUM ARGUTA.



Portion of mature Frond, under side.

PTERIS ARGUTA.

VAHL. MOORE AND HOULSTON. FEE. WILLDENOW.
J. SMITH. LINK. KUNZE, (*not* AITON.)

PLATE XLI. VOL. III.

Pteris palustris,
" *incompleta*,

POIRET. WILLDENOW.
CAVANILLES.

Pteris—Brake.

Arguta—Sharp-notched.

AN interesting, tall-growing, naked-stemmed species, very readily cultivated, and speedily propagated by spores. In order to produce proper sized characteristic fronds, it is necessary that the plant have abundance of pot-room. A common species in most of our English greenhouses.

An evergreen greenhouse species.

From the islands of Madeira, St. Helena, the Canaries, Azores, and Portugal.

Introduced into the Royal Gardens, Kew, in the year 1778.

The fronds are glabrous, spreading, somewhat deltoid, chartaceous, bitripinnate. Pinnules linear-acuminate, with linear-oblong segments, which are obtuse, and having a dentate margin.

Stipes usually about half the length of the frond. Both stipes and rachis of a shining greenish brown colour, with two blackish narrow bands. Terminal, adherent to an erect rhizoma. Stipes having few long hair-like scales. In a section the stipes is rounded beneath and fluted above.

Length of frond from three to five feet; colour pale green. In my specimens, in fronds five feet in length three feet are naked.

Sori linear, extending from the base to nearly the apex of the pinnules, and half way down the decurrent portions. Veins well seen, being much paler in colour than that of the frond.

My thanks are due to Sir Oswald Mosley, Bart., of Rolleston Hall; Mr. Lamb, gardener to F. Wright, Esq., of Osmaston Manor, near Ashbourn; and to Mr. Sim, of Foot's Cray, for plants of *P. arguta*; and to Mr. Norman, of Hull, for fronds.

It is in the Catalogues of Messrs. Sim, of Foot's Cray; Veitch, Jun., of Chelsea; Parker, of Holloway; Kennedy, of Covent Garden; Booth, of Hamburg; and Cooling, of Derby.

The mature fronds are too large to figure entire: the illustration is from a young plant in my own collection.



PTERIS LONGIFOLIA.



Pinna of mature Frond, under side.

PTERIS LONGIFOLIA.

LINNÆUS. MOORE AND HOULSTON. FEE. SMITH.
 KAULFUSS. WILLDENOW. LINK.
 SCHKUHR. JACQUIN. AGARDH. KUNZE. PRESL.
 SCHOTT, MS.

PLATE XLII. VOL. III.

<i>Pteris vittata,</i>	SCHKUHR, (<i>not</i> BORY.) WILLDENOW.
<i>Filix latifolia,</i>	PLUMIER.
<i>Pteris ensifolia,</i>	SWARTZ.
“ <i>costata,</i>	BORY. LINK.

Pteris—Brake.

Longifolia—Long-leaved.

THE *Pteris longifolia* of Linnæus is a well-known species in our gardens, easily propagated, very distinct in its general form, and requiring but little care in its cultivation, and wherever grown a favourite. Its long pubescence, standing out round the stipes, gives the plant a somewhat hedgehog look.

An evergreen stove Fern.

Native of Nepal, the Philippine Islands, the West Indies, Jamaica, and Manilla.

Introduced into England in the year 1770.

The fronds, which are broadly lanceolate in form, are pinnate, the pinnæ being linear, narrow, and as much as seven inches in length, petiolate, with the base auriculate. Fronds

terminal, adherent to a creeping rhizoma. Sterile pinnæ having a serrate margin.

Stipes crowded with long narrow pale-coloured scales; rachis also with scales.

Sori continuous, and intermingled with hairs. Indusium plane.

Length of frond from two feet to two feet and a half; colour a dull heavy green.

For plants of this species I am indebted to Mr. Stratton, of the Cambridge Botanic Garden; Messrs. Rollisson, of Tooting; and to Mr. Haythorn, gardener to Lord Middleton, of Wollaton Hall; and for fronds to M. Schott, the Director of the Imperial Gardens, Vienna.

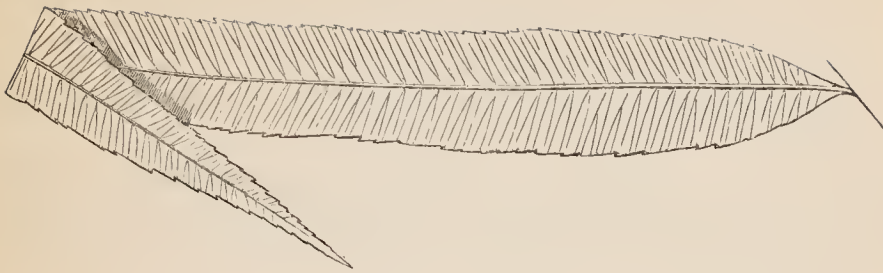
It is in the following Catalogues:—Messrs. Rollisson, of Tooting; Veitch, of Exeter; Veitch, Jun., of Chelsea; Sim, of Foot's Cray; A. Henderson, of Pine-apple Place; Parker, of Holloway; Booth, of Hamburg; Kennedy, of Covent Garden; Cooling, of Derby; and Stansfield and Son, of Todmorden.

The illustration is from a plant in my own collection.



PIERIS CRETICA.

XLIII-VOL. 3.



Pinna of barren Frond.

PTERIS CRETICA.

LINNÆUS. MOORE AND HOULSTON. FEE.
TOURNEFORT. SCHKUHR. SMITH. WILLDENOW. AGARDH.
LINK. KUNZE. PRESL. SCHOTT, MS.

PLATE XLIII. VOL. III.

Pteris serraria,
" *vittata*,

SWARTZ.
BORY, (*not* SCHKUHR, LINNÆUS,
or WILLDENOW.)

Pteris—Brake.

Cretica—Cretan.

A PRETTY, and at the same time an uncommon, garden species generally speaking, yet well worthy of extensive cultivation; compact in habit, and brilliant in colour; easily cultivated.

A warm greenhouse evergreen species.

From the East and West Indies, Mexico, China, the south of Europe, Arabia, and Armenia.

Cultivated in the Royal Gardens, Kew, in the year 1820.

The fronds are glabrous and pinnate, the pinnæ of the sterile fronds linear-lanceolate, the lower pair bipartite, petiolulate, with a serrated margin. The fertile segments linear, narrow, serrated at the apex, and frequently six inches long.

Rachis and stipes straw-coloured.

VOL. III.

2 B

Fronds lateral or terminal, adherent to a short creeping rhizoma.

Sori continuous and prominent.

Length of frond from twelve to eighteen inches; colour vivid pale green.

There is a variety from India called *heterodactylon*, which differs in the stipes and rachis being purplish brown in colour, the pinnæ being all bipartite, and the fronds arranged around a scaly crown.

My obligations are due to Mr. Sim, of Foot's Cray, for fronds of *Pteris cretica*; and to M. Schott, Director of the Imperial Gardens, Vienna, for fronds.

It may be procured of Messrs. Sim, of Foot's Cray; Rollisson, of Tooting; A. Henderson, of Pine-apple Place; Booth, of Hamburg; Kennedy, of Covent Garden; and Stansfield and Son, Todmorden.

The illustration is from a plant in my own collection.



PTERIS VESPERILIONIS.







Portion of mature Frond, under side.

PTERIS VESPERTILIONIS.

LABILLARDIERE. KUNZE. SCHOTT, MS.

PLATE XLIV. VOL. III.

Litobrochia vespertilionis,

“ “

J. SMITH. LABILLARDIERE. FEE.

MOORE AND HOULSTON. PRESL.

Pteris—Brake.

Vespertilionis—Bat-winged.

IN THE SECTION LITOBROCHIA OF AUTHORS.

THE present species is an exceedingly handsome, glaucous-looking *Osmunda*-like Fern, which should be in every collection. When room is allowed for it to grow properly, it makes an attractive-looking specimen.

An evergreen greenhouse Fern.

Native of New Holland and New Zealand.

Raised at the Royal Gardens, Kew, in the year 1838.

The fronds are glabrous, widest at the base and gradually narrowing to a point; tripinnate; pinnæ lanceolate, opposite; pinnules opposite, sessile, oblong-linear, acuminate, the segments being membranous, roundish, oblong-obtuse; decurrent at the base.

Rachis and stipes glaucous, at first green, then purplish green; base scaly, lateral, attached to a creeping, dark brown, scaly

rhizoma. Scales reddish brown. Stipes nine inches in length.

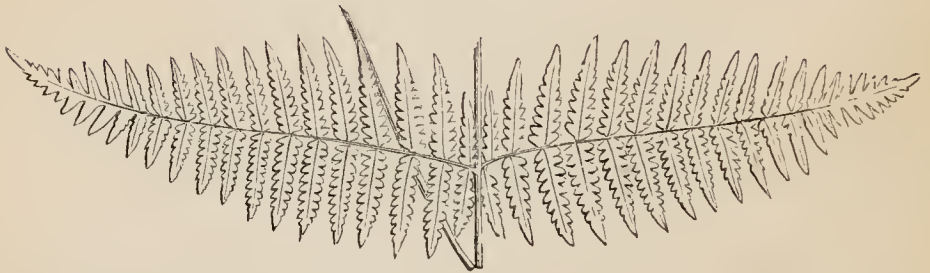
Sori oblong-linear, on either side pinnules and segments, but not extending to the apex of either; colour pale orange brown.

Length of frond from two to three feet; colour above yellowish green, underneath glaucous.

I am indebted to Mr. J. Henderson, of Wentworth, for a plant of this species; and to Mr. Roper, of Brighton; Mr. Downs, of Ilfracombe; Mr. Norman, of Hull; and to M. Schott, Director of the Imperial Gardens, Vienna, for fronds.

It is in the Catalogues of Messrs. Rollisson, of Tooting; Parker, of Holloway; Masters, of Canterbury; A. Henderson, of Pine-apple Place; R. Sim, of Foot's Cray; Kennedy, of Covent Garden; and Stansfield and Son, of Todmorden.

The illustration is a portion of a frond from a plant in my own collection.

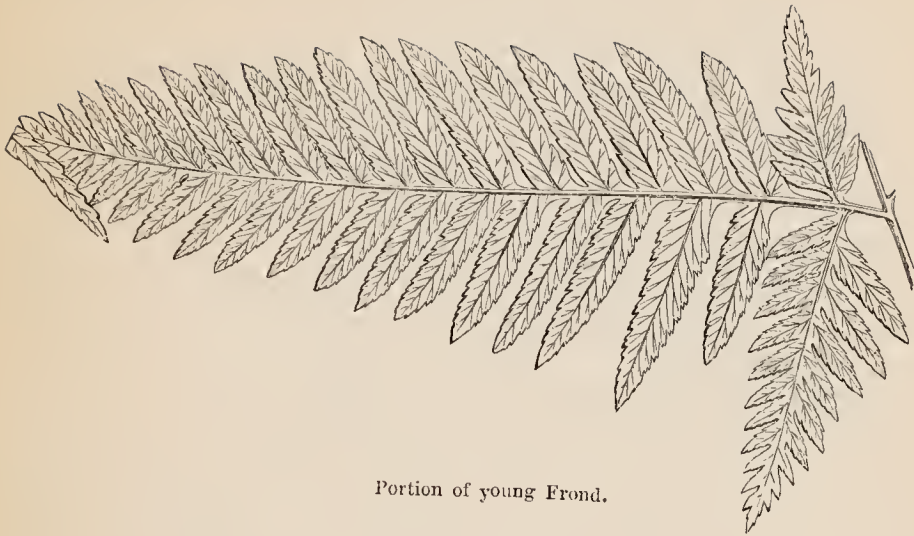




PTERIS TREMULA.







Portion of young Frond.

PTERIS TREMULA.

R. BROWN. MOORE AND HOULSTON. FEE. KUNZE.
PRESL. J. SMITH.

PLATE XLV. VOL. III.

Pteris chrysocarpa,

LINK. SCHOTT, MS.,
(not of HOOKER & GREVILLE.)

“ *affinis*,

RICHARD.

“ *edulis*, var. *platyphylla*,

FISCHER.

Pteris—Brake.

Tremula—Trembling.

THIS abundant species, handsome as it is, becomes a pest in our collections; young plants spring up in all the pots, and increase so rapidly in size, that unless they are destroyed would soon monopolize a whole house to themselves. No ferns grow so freely from spores as *Pteris tremula*, *P. serrulata*, *Hypolepis repens*, and *Nephrodium molle*. In a collection of several

hundred species, ninety per cent of seedling Ferns will be found to be of the above-mentioned four species.

An evergreen greenhouse Fern.

Native of New South Wales, New Holland, Nepal, and New Zealand.

Fronds glabrous, slender, and deltoid; tri-quadripinnate; the pinnules linear, caudate at the apex; narrow linear-oblong segments, margin crenate, apex blunt.

Stipes one half the length of the frond, green when young, afterwards reddish brown; terminal, adherent to a somewhat creeping rhizoma.

Length of frond three feet; colour bright green.

Veins distinctly seen, being paler in colour than that of the frond.

Sori linear, continuous to the apex of the pinnules, where they frequently join; colour reddish brown, and prominent. Occasionally fronds will be found with interrupted sori.

My thanks are due to Sir Oswald Mosley, Bart., of Rolleston Hall; M. Schott, Director of the Imperial Gardens, Vienna; Mr. Lamb, gardener to F. Wright, Esq., of Osmaston Manor; and to Mr. Sim, of Foot's Cray; for plants of this species.

It is in the Catalogues of Messrs. Rollisson, of Tooting; Parker, of Holloway; A. Henderson, of Pine-apple Place; Veitch, Jun., of Chelsea; R. Sim, of Foot's Cray; Booth, of Hamburg; Cooling, of Derby; Kennedy, of Covent Garden; and Stansfield and Son, of Todmorden.

The illustration is a portion of a frond from a plant in my own collection.



AD. KINGIANA.

NLVI-VOL. I.



Portion of barren Frond.

PTERIS KINGIANA.

ENDLICHER. MOORE AND HOULSTON. FEE. JACQUIN.
J. SMITH. KUNZE. PRESL.

PLATE XLVI. VOL. III.

Pteris—Brake.

Kingiana—King's.

A LARGE, noble-looking, vigorous-growing, spreading, and somewhat pendulous-habited Fern, requiring abundance of pot-room and a strong soil to support its thick fleshy-feeling fronds.

An evergreen greenhouse species.

From Norfolk Island.

Introduced into the Royal Gardens, Kew, in the year 1831, by Mr. Allan Cunningham.

Fronds glabrous, sub-bipinnate; pinnæ linear-lanceolate and drooping, lowest pair bipartite and petiolulate, segments linear-acuminate, repand, serrate margin, costa spinulose on the upper side; lateral, or terminal, attached to a short creeping rhizoma.

Stipes twenty inches in length, circular, scaly near the base; vivid green in colour, except near the base, where brownish.

Sori continuous, commencing at the base, yet not extending

much above a third of the length of the pinnules; colour brown; indusium broad.

Length of frond three feet; colour yellowish green.

My thanks are due to Mr. Henderson, of Wentworth, for a plant of this Fern.

It may be procured of Messrs. Sim, of Foot's Cray; Rollisson, of Tooting; A. Henderson, of Pine-apple Place; Veitch, Jun., of Chelsea; Parker, of Holloway; Stansfield and Son, of Todmorden; and Kennedy, of Covent Garden.

The illustration is a portion of a frond from a plant in my own collection.



PIERIS LEPTOPHYLLA.





Portion of mature Frond, under side.

PTERIS LEPTOPHYLLA.

SWARTZ. KUNZE. LINK. AGARDH. PRESL.

PLATE XLVII. VOL. III.

Litobrochia leptophylla,

“ “

Pteris spinulosa,

“ *decurrens*,

Cheilanthes spinulosa,

J. SMITH. MOORE AND HOULSTON.

FEE. SWARTZ.

RADDI. SCHOTT, MS.

ARRAB, (*not of LINK or RADDI.*)

LINK.

Pteris—Brake.

Leptophylla—Slender-leaved.

IN THE SECTION LITOBROCHIA OF AUTHORS.

A DELICATE, pleasing, dwarf species, whose spinulose fronds induced both Link and Raddi to name it *spinulosa*.

A stove species.

Native of Brazil.

Raised at the Royal Gardens, Kew, in the year 1834.

Fertile fronds glabrous, triangular in form, bitripinnate; segments distant, acuminate, linear, and narrow. Apex serrate.

Sterile fronds glabrous, triangular in form, bipinnatifid, and below tripinnatifid; pinnae linear-acuminate, decurrent at the base; margin serrate, with long spinulose teeth.

Fronde terminal, adherent to a fasciculate rhizoma.

Sori linear, continuous almost to the apex.

Length of sterile frond twelve inches; length of fertile frond two feet.

In a fertile frond fifteen inches in length the stipes was nine inches, and in a barren frond of eight inches, the stipes was five inches. Stipes green on the under side and rounded, flat on the upper, and brownish. Few scattered scales near the base.

My thanks are due to M. Schott, the Director of the Imperial Gardens of Vienna, and to Messrs. E. G. Henderson, for plants of this species.

It is in the Fern Catalogues of Messrs. A. Henderson, of Pine-apple Place; E. G. Henderson, of St. John's Wood; Booth, of Hamburg; Kennedy, of Covent Garden; Parker, of Holloway; and Stansfield and Son, of Todmorden.

The illustration is from a plant in my own collection.



PTERIS CRENATA.



Portion of barren Frond.

PTERIS CRENATA.

SWARTZ. MOORE AND HOULSTON. J. SMITH. FEE. BURMANN.
 HOUTTUYN. KUNZE. SCHOTT, MS.

PLATE XLVIII. VOL. III.

<i>Pteris chinensis</i> ,	LOUDON, AND OF ENGLISH GARDENS.
" <i>attenuata</i> ,	BLUME.
" <i>chilensis</i> ,	HORT.
<i>Phorolobus chinensis</i> ,	DESVAUX.

Pteris—Brake.

Crenata—Notched.

Pteris crenata is not a common species in our English gardens, although easily managed with the ordinary care of hothouse plants.

An evergreen stove Fern.

Native of the East Indies, China, Java, New Holland, and the Philippine Islands.

Cultivated at the Royal Gardens, Kew, in 1822.

Fronds glabrous, bipinnate. Sterile frond having the pinnules oblong-ovate in form, margin crenato-serrate, decurrent at the inferior base. Fertile frond erect, pinnules linear-acuminate, narrow, sub-petiolate, and decurrent at the inferior base.

Fronds lateral, adherent to a short creeping rhizoma.

Sori continuous, extending along the decurrent portions to the apex of the pinnales, and, although margined, never round the upper edges, being always on the under side. Indusium prickly.

Length of frond from twelve to eighteen inches; colour dull green.

Stipes circular on the under side, and green; hollowed on the upper, and darker green. In a frond in my collection, twenty inches in length, the stipes was nearly twelve inches.

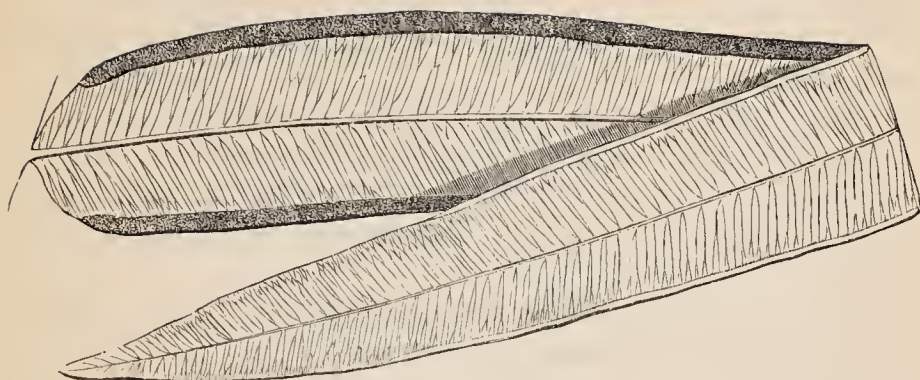
My thanks are due to Mr. Stratton, of the Cambridge Botanic Gardens, and to Mr. Henderson, of Wentworth, for plants of this species; and to M. Schott, of the Imperial Gardens, Vienna, for fronds.

The following Nurserymen include it in their Catalogues:—Messrs. Booth, of Hamburg; Sim, of Foot's Cray; Parker, of Holloway; Veitch, Jun., of Chelsea; A. Henderson, of Pineapple Place; Stansfield and Son, of Todmorden; and Kennedy, of Covent Garden.

The illustration is from a plant in my own collection.



PTERIS GRANDIFOLIA.



Pinna of mature Frond, under side.

PTERIS GRANDIFOLIA.

LINNÆUS. PLUMIER. PETIVER. SLOANE. SCHKUHR. KUNZE.
LINK. PRESL. (*not of* PÆPPIG, *nor* SCHLECHTENDAL.)

PLATE XLIX. VOL. III.

Litobrochia grandifolia,
Heterophlebium grandifolium,
Pteris vittata,

J. SMITH. MOORE AND HOULSTON.
FEE.
SCHKUHR.

Pteris—Brake.

Grandifolia—Large-leaved.

IN THE SECTION LITOBROCHIA OF AUTHORS.

A LARGE, handsome species, seldom to be met with in collections, and whose chief attraction is its boldness.

An evergreen stove Fern.

A native of the West Indies and Jamaica, St. Domingo, and Martinica.

Introduced into England in the year 1793.

Fronds erect, pinnate; pinnæ membranous, glabrous, petiolate,

linear-acuminate, about one inch broad, and eighteen inches long.

Rachis and stipes pubescent, lateral, adherent to a creeping scaly rhizoma.

Sori linear, continuous, and very conspicuous.

Length of frond from eight to ten feet; colour pale green.

I have not yet been able to procure a plant of this species. My thanks are due to Mr. Henderson, of Wentworth, for fronds.

This rare and magnificent species is not yet to be procured of any of our Nurserymen.

The illustration is from a frond forwarded by Mr. Henderson, of Wentworth.



PTERIS BIAURITA.



Portion of mature Frond, upper side.

PTERIS BIAURITA.

LINNÆUS. KUNZE. PLUMIER. PRESL.
FEE. HOOKER AND BAUER, (*not of* SIEBER.)

PLATE L. VOL. III.

Campteria biaurita,
Pteris nemoralis,

J. SMITH. MOORE AND HOULSTON.
BLUME? (*not of* WILLDENOW.)

Pteris—Brake.

Biaurita—Two-eared.

IN THE SECTION CAMPTERIA OF SOME AUTHORS.

SOME confusion exists as regarding what Fern is to be understood as representing the true *Pteris biaurita*, as it appears evident that several species bear this name. However there can be but little doubt but that the present Fern is that known as *P. biaurita* of Linnæus.

It is a handsome free-growing species, somewhat scarce in cultivation in England.

An evergreen stove species.

Native of the West Indies and Jamaica.

Introduced into the Royal Gardens, Kew, in 1842, by Mr. W. Purdie.

The fronds, which are glabrous, are triangularly elongate in

their form, pinnate, and having lanceolate pinnæ, which are deeply pinnatifid, petiolulate, with an entire caudate apex. Lower pair of pinnæ bipartite; segments linear, blunt, and sub-falcate.

Stipes slightly scaly near the base. Stipes half the length of the frond. Terminal, adherent to an erect fasciculate rhizoma.

Length of frond from three to four feet; colour pale green.

My thanks are due to Mr. Thomas Moore, Curator of the Chelsea Botanic Gardens, for a plant of this species; and to Miss Carr, of Qualt Rectory, for fertile fronds.

It appears to be only included in the Fern Catalogue of Messrs. A. Henderson, of Pine-apple Place.

The illustration is from a portion of Miss Carr's frond.



Young Frond.

GLOSSARY FOR VOL. III.

[The present glossary contains descriptions of such terms as are not described in that for Volume I. It must therefore be considered a continuation of that given at page 147 in the first Volume.]

- Antrorsely.* Having an upward direction towards the summit.
Areoles. Having spaces distinctly marked out on the surface.
Auricled. Eared.
Bilobed. Divided into two lobes.
Bipartite. Deeply divided into two parts.
Cartilaginous. Substance tough or hard.
Chartaceous. Thin, flexible, and membranous.
Continuous sori. When there is no break from uniformity.
Cultriform. Knife-blade shaped.
Decumbent. Reclining, but having a tendency to rise at the extremity.
Deltoid. Somewhat triangular.
Digitate. Resembling fingers.
Flaccid. Weak or bending.
Glaucous. When the green colour has a peculiar whitish-blue lustre.
Incurved. Bending from without inwards.
Interrupted sori. Not continuous.
Muricato-scabrous. Rough, produced by short, hard, stiff pubescence or scattered tubercles.
Orbicular. Circular.
Palmate. Hand-shaped.
Pinnulets. Leaflets.
Pilose. Hairy.
Planc. Perfectly level or flat.
Reticulated. Resembling net-work.
Reflected. Turned back.
Sagittate. Arrow-shaped.
Scabrous. Rough.
Squamiferous. Covered with scales.
Subhastate. Nearly halbert-shaped.
Subterraneously. When the rhizoma creeps underground.
Subtrilobate. Nearly divided into three lobes.
Trapezoid. When the sides of a four-sided leaf are unequal.
Trilobate. Divided into three lobes.
Trilobed. Divided into three lobes.

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Arnott.	Hooker, Sir W. J.	Purdie.
Arrab.	Houlston.	Raddi.
Babington.	Houttuyn.	Raoul.
Bauer.	Humboldt.	Retzius.
Bernhardi.	Jacquin.	Rheed.
Blume.	Kaulfuss.	Richard.
Bolton.	Klotzsch.	Rupprecht.
Bonpland.	Kunth.	Salisbury.
Bory.	Kunze.	Schkuhr.
Bredemeyer.	Labillardiere.	Schlechtendal.
Brown, R.	Lamarek.	Schomburgk, Sir R. H.
Burmam.	Langsdorff.	Schott.
Cameron, D.	Le Prieur.	Schrader.
Cantor, Dr.	Leph.	Seeman.
Cavanilles.	Linden.	Sieber.
Chamisso.	Link.	Sinclair, Dr.
Chapman.	Linnaeus.	Skinner.
Colenso.	L' Herminier.	Sloane.
Cunningham, Allan.	L' Hermonnier.	Smith, J.
Deakin.	Loddiges.	Sowerby.
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Don.	Lowe, E. J.	Sprengel.
Edgerley, G.	Lowe, Rev. H.	Spruce, R.
Endlicher.	Mackay.	Stokes.
Fee.	Martens.	Swartz.
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Forskahl.	Mc' William, Dr.	Thunburg.
Forster.	Miguel.	Tournefort.
Francis.	Moore, Thomas.	Vahl.
Galleotti.	Moricaud.	Villars.
Gardner, G.	Newman.	Wallich.
Gaudichaud.	Petiver.	Webb.
Gmelin.	Plukenet.	Willdenow.
Gray, A.	Plumier.	Wilson.
Greville.	Pœppig.	Wollaston.
Henderson, J.	Poiret.	

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